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Revival in the Rust Belt:

Tracking the Evolution of an Urban Industrial Region

A Report on the First Year of the
Oakland County Business Survey

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PREFACE

Each of the reviewers who agreed to help us with this manuscript inevitably returned with a similar comment: "who is this book written for?" "It's not written exclusively for an academic audience," they went on, noting that "it's not written for economic development professionals or government officials." Nodding our heads vigorously, we quickly agreed -- the book is written for several distinct audiences, who may often have conflicting standards and expectations.

We have targeted this book at four major audiences and tried to write in a style that would reach them all. One target is our fellow academics. We feel that this project as a whole is a novel and relevant piece of research, and we wanted to describe it in a complete form, before writing a series of more topical journal articles describing the findings in more detail and with more reference to other research and theoretical issues. A second, and equally important target, is Oakland County itself. Research findings are presented in a way that draws implications for the economic development of the County, and points to ways the data might be used in the future.

We also wanted to address our research more broadly to government officials concerned with commerce and economic development, at a state, national, and international level. We feel that this approach has an important contribution to make to the formulation and application of public policy, and hope that it gains their attention.

Finally, the business community is in some ways the most important constituency we have written for. We depend upon them not only as the source of our data, but also as the final arbiter of our recommendations for implementation of some of these findings. Without their continued support our ability to address the many other issues raised here would be severely limited.

We recognize that there is a risk in trying to speak to several audiences at the same time. It becomes impossible to adhere to the canons, conventions, or styles of any one of them, and forces a number of compromises. The goal of our work, however, was to *inform* -- to describe the study as a whole, and make the connections between this work and the interests of several constituencies. We plan that our future work will move beyond this broad overview and begin to address the specific concerns of our academic colleagues, Oakland County, government officals, and the business community.

ACKNOWLEDGMENTS

This project reflects the contributions, suggestions, and hard work of many different people. This project was planned and executed jointly, nearly every step of the way, with the Oakland County Economic Development Group. George Skrubb and Marlys Vickers were our active collaborators, and several others made important contributions. We thank the Oakland County group for both their sponsorship and their colleagueship, and look forward to the continuing development of our joint research. We also extend our thanks to the business firms of Oakland County, who participated in this study and frequently made helpful comments along the way.

Getting this project off the ground took the help of many individuals and institutions. The initial support of the Independent Business Research Office of Michigan (IBROM), the Michigan Department of Commerce, and the University of Michigan's Institute of Science and Technology (IST) and Graduate School of Business Administration enabled our research in this area to begin. Sue Wolfram and Alfred Edwards of IBROM, Doug Ross and Lou Glazer of the Department of Commerce, Roger Guiles of IST, and Rob Kazanjian and Larue Hosmer of the Michigan Business School each provided helpful comments, financial support, and in some cases, both.

The ISR project team for this study went through several reincarnations. Joanne Alexander, Kim Kimlin, and Niki Pappas all served as research assistants, and Fran Eliot provided invaluable support and assistance as our research secretary, particularly in the preparation of the final book manuscript. Rick Lifsitz deserves special mention for his part in creating the data base used to track this study, and in his contributions to the development of the survey instrument. In addition, a number of research volunteers contributed their efforts to this study -- Fay Balk, Virginia Barnes, Patty Chin, Phil Hinz, Nick Marcus, Wendy Penner, and Scott Rosen among them.

Special mention is also due the colleagues who reviewed the draft manuscripts for this book. Larue Hosmer, Rob Kazanjian, Richard Stoffle, Brian Chambers and Doug Henderson all provided valuable feedback, as did our Oakland County colleagues George Skrubb and Marlys Vickers. Linda Stafford of the ISR

publication section also provided valuable help in preparing this manuscript for publication.

We are also doubly indebted to our colleague John Jackson of the Center for Political Studies, first, for the initial development of the MESC sampling frame used in this study, and second for his suggestions regarding the analysis of the MESC employment trends presented in Appendix E. CPS colleagues Kathy Kurtz and Raburn Howland also made important contributions in the development and administration of this project.

Last, but clearly not least, we would like to thank Steve Heeringa and Judy Conner of the ISR Sampling Section. Their attentiveness and advice on the technical aspects of our study did much to enhance the quality of our research.

Our sincere thanks to all of those mentioned above, and to others who have given us comments, criticism, or encouragement along the way.

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CHAPTER ONE: INTRODUCTION AND OVERVIEW

Understanding the evolution of regional economies and the growth and decline of organizations is an important step in the formulation of state and local economic development policies. This understanding is also central to the progress of academic research on organizations and the creation of new business. Despite the pervasiveness of the problem, remarkably few studies have systematically sampled firms from a given region, studied them over time, and drawn conclusions in these highly important areas. Even fewer studies have done this across the wide range of industries that make up an urban industrial region.

This book tries to address the above problem by describing a program of research, now underway, designed to understand the evolution and development of an urban region through a detailed knowledge of the firms within it. The project has taken place in an area of the country, Southeastern Michigan, which over the past few years has been better known for decline than for growth and development. It focuses in particular on the growing collection of technology-based firms that have gathered in this region in the northern Detroit suburbs. "Automation Alley" is now one of the fastest-growing high-technology corridors in the nation (Wall Street Journal, 1985; The Economist, 1987). In a region that was all but written off five years ago, two thirds of all the robots and manufacturing tools in the nation are now produced. This project has focused on understanding the development of the economic base in Oakland County -- the heart of this revival.

The important contributions that new and growing firms make to the economy and the creation of jobs has been demonstrated by the research of David Birch (1981) and others (e.g., Birley, 1984; 1986; Jackson, 1985). Their analyses of existing data bases, such as Dun & Bradstreet's, have shown that a majority of all new jobs are created by firms with less than 500 employees. Nevertheless, most efforts at national industrial policy and regional economic development focus on the interests of firms that are much larger and have the largest proportion of existing jobs. This also comes at a time when the number of self-employed is rising, and is expected to grow. This trend is fueled by a growing perception that self-employment may ultimately be the best means to escape the threats of layoffs, downsizing, and cutbacks. This trend may prove particularly important as layoffs and downsizing are extended to the white-collar ranks -- precisely those who would be best equipped to form new businesses.

Although analyses of existing data bases are an important step in understanding the contribution that new and growing firms make to a regional and national economy, they have several limitations. First, the content of such data bases is extremely limited -- data on firm size, sales, or credit rating are highly important, but they do little to help explain the system of strategies, styles, and linkages that begin to explain *how* the growth and development process works. These data are necessary to the formulation of a theory of the *process* by which economic development occurs. A second limitation of the analysis of many existing data bases is the coverage of the actual population by the data base. Often there is a systematic neglect of new and small firms -- precisely those that may be of highest interest in such a study. This project has attempted to overcome both of these limitations.

As Freeman (1986) and others have pointed out, only a handful of other studies have attempted to go beyond the limitations of existing data bases, and even those studies that do usually focus only on one region. Reynolds and West (1985), for example, surveyed new firms in Minnesota, using Dun & Bradstreet's as a sampling frame, to assess their relative level of contribution to job creation and exports. The landmark work of Roberts (1970) and Cooper and Bruno (1977) on the locational preferences of high-technology firms in the Route 128 area around Boston, Massachusetts, and Silicon Valley, were the first to show that high-technology firms used different criteria than traditional firms when making location decisions. More recently, Galbraith (1985) and DeNoble and Galbraith (1987) have surveyed high-technology firms in Orange County and San Diego County, California concerning their locational criteria using a variety of directories to identify firms. Jarboe (1986) conducted a similar study in Ann Arbor, Michigan. These studies point to interesting regional differences in the locational criteria used by individual firms.

Still other investigators have focused upon the internal organization and management of firms in an effort to understand the factors related to the success of new ventures. The work of Van de Ven et al. (1984), Kazanjian (1984), and Dess and Keats (1987) is particularly noteworthy. However, even many of the above studies have limited generalizability in that they are either industry specific (e.g., the computer industry) or rely on severely limited sampling frames (e.g., firm names secured from a venture capital company).

In general, academic studies of the topic have suffered from a fragmented, discipline-based approach that attributes the successful creation of new business to a very limited range of predictors characteristic of a particular discipline. Thus, psychologists carry out studies of the characteristics of successful entrepreneurs, or the reasons for choosing a career as an entrepreneur; studies of new venture structure emphasize financing and the legal form of new corporations; organizational studies tend to look at behavioral and structural characteristics of firms as they develop; sociologists tend to do ecological studies of the growth and decline of populations of firms. Urban planners and economists have characteristically focused upon a narrow range of locational criteria. Furthermore, most of the studies using one or another of these fragmented perspectives are carried out with little or no attention to issues of economic development or regional growth.

In contrast, the theoretical model that guides this study (Hart and Denison, 1987, included in Appendix A) attempts to integrate these disparate perspectives into an ecological model of the creation and development of new business activity, emphasizing the relevance of factors ranging from individual characteristics to group and organizational processes, and from financial structuring to large-scale factors affecting populations of organizations. In addition, the model stresses the fact that development usually takes place within a specific region -- firms based on technology tend to cluster in an environment with a high quality of life and the resources necessary for their survival and growth. The existence of start-up teams with knowledge and experience and an environment that allows them to come together are also necessary for both new firm creation and economic development to take place. Or as The Economist concludes, "places in America where modern manufacturing has taken root and grown fastest have three things in common: a handful of firms strong in one particular field; technical expertise on tap at a nearby engineering school or big government laboratory; and imaginative local bankers and investors" (The Economist, 1987).

This approach led to the development of a survey with a broad range of measures for this study. It also led to the selection of a sample of firms that gave both a broad-based representation of the County as a whole, and several targeted samples of high-growth, technology-based, and business service firms. Finally, the approach led to a study designed to continue over a five-year period to assess how all of these factors change over time.

The idea of a business survey is not a new one, but the idea that a periodic survey of business firms can be the base for a system of economic indicators as well as an empirical base for the formulation and evaluation of economic policy is an underdeveloped concept. It seems unfortunate that in a time when survey research is used continually to decide the popularity of television shows, the most likely candidates for political office, and countless topics of scientific and practical interest, that relatively little attention is paid to business firms as a basis from which to study economic trends, plan public policy, and understand the management of existing firms and the growth of new organizations. Even though this project has focused on one particular region, the approach is a general one with broad application.

The Organization of this Book

The findings from the first year of this study are reported in this book by content area. Figure 1.1 presents a schematic representation of the content of the study that helps explain the organization of the book. In this figure we make a distinction, between "Firm Characteristics" and "Firm Perceptions." By characteristics, we refer to a set of relatively objective attributes of firms: things like industrial sector, firm size, growth rate, and so on. These distinctions facilitate analyses of particular types of firms, allowing us to look, for example, at the difference between firms in different industrial sectors, or at the differences between firms with varying levels of technology. While the measurement of some of these characteristics depends somewhat upon the subjective judgement of the respondent (e.g., stage of development), for the most part, variables in this set are both more objective than the set of Firm Perception variables, and are primarily used as predictor variables for firm growth and economic development.

The second set of variables, Firm Perceptions, include things like the perceptions of major operating problems, the use of business services, and the choice that firms make in choosing the County as a location. This set also includes economic and employment outlook variables, consisting of both subjective estimates of the intent to invest or expand in the near future, and objective measures such as employment growth over the past year. These outlook variables are, for the most part, used as "dependent" variables in this study -- those factors that we want to explain.

This distinction between Firm Characteristics and Firm Perceptions is central to the organization of this book. After a presentation of the study design and methodology in Chapter Two, Chapter Three presents the results for the Firm Characteristics. Simple univariate results for each of the characteristics listed in

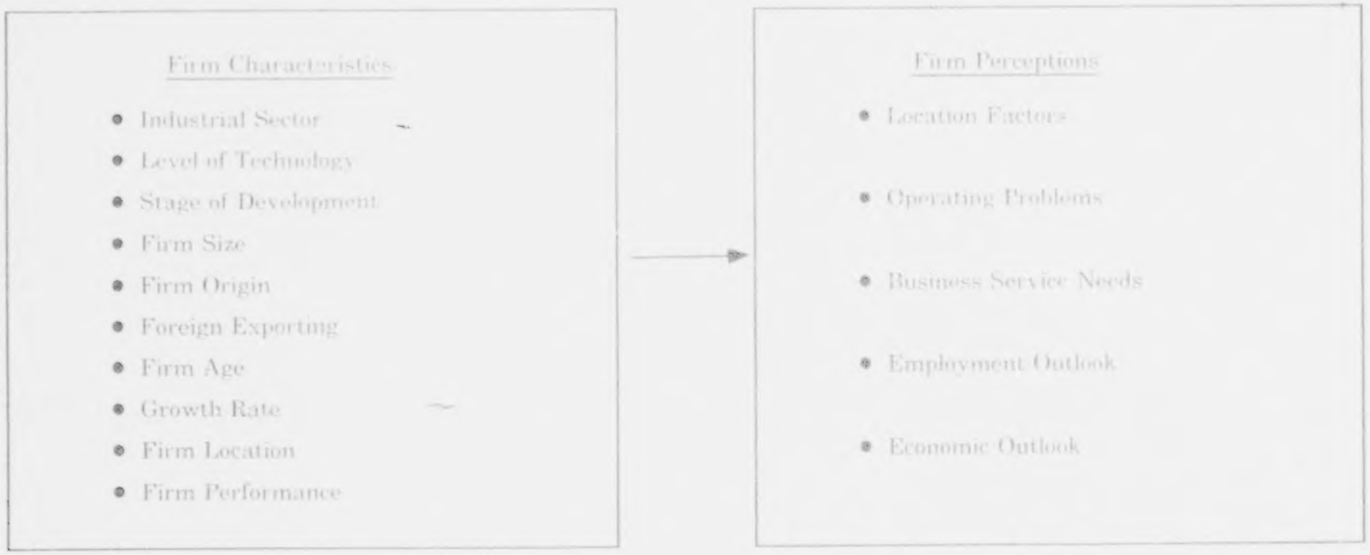
Firm Characteristics
● Industrial Sector
● Level of Technology
● Stage of Development
● Firm Size
● Firm Origin
● Foreign Exporting
● Firm Age
● Growth Rate
● Firm Location
● Firm Performance
Firm Perceptions
● Location Factors
● Operating Problems
● Business Service Needs
● Employment Outlook
● Economic Outlook

Figure 1.1. The Content of This Study

Figure 1.1 are followed by an analysis of the interrelationships between these characteristics -- growth rates by industrial sector, exporting by level of technology, and so on. Chapter Three ends with an analysis of the composition of the region's economy drawn from the data.

Chapter Four examines Firm Perceptions -- the second broad set of measures presented in Figure 1.1. Univariate results for location factors, operating problems, and the use of business services, as well as data on employment and economic outlook are described for the County as a whole. Each of these sections is followed by the presentation of a set of indexes in each of the five areas; these indexes are used to summarize the results in later analyses.

Chapter Five combines the variables from Chapters Three and Four and examines perceptions and economic outlook for different types of firms. The results are analysed by industrial sector, firm size and location, growth rate, and so on, to try to highlight the differences between various types of firms. Chapter Five itself focuses on a discussion of the results, and much of the actual detailed analysis is presented in Appendix F.

The final chapter of this book, Chapter Six, addresses three issues. First, it presents a summary of the results of the first year's study, where issues of the development of individual firms and the more macro issues of economic development are addressed. Next, a set of policy issues are addressed, with particular attention given to the ways in which the research might be used both to suggest and assess policy options. Finally, since this is only the first in a planned series of publications and research in this area, the authors outline an agenda for future research.

CHAPTER TWO: METHODOLOGY AND STUDY DESIGN

The methods used in this study were designed to serve several purposes. We wanted to sample adequately the County as a whole, and also have reliable results for the various business sectors. In addition, we wanted to have specific target samples of manufacturing and business service firms, as well as an extensive sample of rapidily growing firms. We had a strong interest in small and new firms, but wanted to be certain to oversample the relatively small number of large firms in the County. The study design needed to accomodate these conflicting demands.

Chapter Two describes the methodology of this study in detail. The chapter begins with an overview to give readers a broad understanding of the study design but does not go into the technical aspects of the sample or the details of data collection. Readers who are less interested in the technical aspects of the study may wish to skip directly from this overview of the methodology to the first results chapter, Chapter Three.

The overview is followed by a description of the sample selection and the process we went through to verify the names and addresses of firms. The third part of this chapter describes the development and pretesting of the survey instrument, and is followed by a section on the procedures used for data collection. The chapter ends with a section presenting the response rates by industry sector and employment size, and a discussion of the weighting procedures used in the analyses that follow in Chapters Three, Four, and Five.

Overview

As mentioned above, the sample for this study was designed to over-represent several types of firms: companies based on technology, business service firms, large firms, and those that had grown rapidly over the past few years. The sample was drawn to provide both a broadly representative sample of County businesses, and these specific targeted groups. The sample was drawn from the 1984 records of the Michigan Employment Security Commission (MESC) and names and addresses were verified from the telephone company and other sources. The sample was designed so that weighted results would allow for projections about total employment and total number of firms in the County.

Surveys were mailed to the CEO or President of 2,248 firms asking questions about characteristics of the firm such as industrial sector, stage of development, or level of technology; and about firm perceptions on issues such as location factors, operating problems, or economic outlook. The presentation of these results in Chapters Three through Five follows the general outline of the content of this study presented in the first chapter in Figure 1.1. A copy of the questionnaire is included in Appendix B.

The overall response rate for the survey was 30%. Larger firms had a slightly higher response rate, and smaller firms slightly lower. Retail and wholesale firms had lower-than-average response rates, while finance and service firms were higher. A complete summary of response rates by industry sector and firm size is presented later in this chapter in Table 2.2.

The Sample: Selection and Verification

Selection. The sample for this project was selected from the population of all businesses currently operating from a location in Oakland County as defined by the fourth quarter 1984 ES-202 records of the Michigan Employment Security Commission (MESC). This population includes organizations of nearly all types, excluding only farms, railroads, and government operations. A second sample of "high growth" firms was selected from a longitudinal version of the ES-202 records developed and maintained by the Sampling Section at the Institute for Social Research (ISR).

In order to include all of the larger firms in the County, and obtain a large sample of small firms, but not allow the sample to be dominated by them, we chose a stratified PPS sample. PPS samples (probability proportional to size) select firms based on size -- larger firms have a higher probability of falling in the sample than do smaller firms. The exact probability of each firm falling in the sample is determined by the size of the firm, plus the overall sampling fraction used in the study. Thus, all firms over a given size (the inverse of the overall sampling fraction used in the study) are certain to fall into the sample. Large firms meeting this criterion are referred to as "self-representing" firms in this report.

A PPS sample with probability proportional to *employment* size also allows for the calculation of a set of sampling weights that will allow for projections to be made to the entire population of firms in the County and to the entire population of individual employees. This sampling design allows us to serve both purposes with the same sample.

The sample also had five separate "strata" that allowed for the over-sampling of firms in the target sample of technology-based industries and business services, and the under-sampling of firms in the secondary sample: agriculture, construction and mining, retail sales, hotels and personal services, auto repair, motion pictures and amusement, health care, education, social services, and museums. The rational for this decision was that the technology-based sectors of the economy, and the services that directly support them, are the most central to economic development and should be studied in greatest detail. The criteria for selecting firms from various industries was the four-digit Standard Industrial Code (SIC).

In addition, the sampling strategy also over-sampled "high growth" firms, and took all firms considered to be corporate headquarters on the MESC listings. The complete sampling frame and the five separate strata are described in detail in Table 2.1.

Table 2.1. The Five-Strata PPS Sampling Frame.

Stratum 1: SIC Codes 2000-5199 6000-6799 7300-7399 8100-8199 8600-8699 Probability of selection = 1 selection per 60 employees	Stratum 2: SIC Codes 0100-1799 5200-5999 7000-7299 7400-8099 8200-8499 Probability of selection = 1 selection per 240 employees
Stratum 3: Self-Representing Firms All firms from Stratum 1 with > 60 employees and; all firms from Stratum 2 with > 240 employees.	Stratum 4: All "high growth" firms High growth criteria described below.
Stratum 5: Corporate Headquarters All Oakland County-based Headquarters of multi-establishment Michigan businesses.	

As the table indicates, firms in the target industries in Stratum 1 (technology-based firms and business services) were sampled at a rate of one selection for each 60 employees in the firm. Since all firms in this target group with an employment size of 60 or more were certain to fall in the sample these larger firms were included in the stratum of self-representing firms, Stratum 3.

All firms in the secondary industries in Stratum 2 (agriculture, construction, and mining, retail sales, hotels and personal services, auto repair, motion pictures and amusement, health care, education, social services, and museums) were sampled at a rate of one selection for each 240 employees in the firm. All firms in this stratum with more than 240 employee were also certain to fall in the sample, and were included in Stratum 3, the self-representing firms.

In addition, as mentioned above, a separate high growth sample was selected in order to understand better those sectors of the County economy that are growing most rapidily. Selecting these firms required the use of the longitudinal MESC ES-202 records developed by the Sampling Section at ISR, to compare firms at three points in time; 1979: 4th quarter, 1982: 4th quarter, and 1984: 4th quarter. Firms were considered "high growth" during this time period if they met one of the following criteria:

1. **Small and new firms, 1979-1982**. Those firms falling in the top 5% in absolute employment during 1982:4 for those firms that were either:
    a. created between 1979:4 and 1982:4 or,
    b. had less than five employees in 1979:4;

2. **All other firms, 1979-1982**. Those firms falling in the top 5% proportional growth between 1979:4 and 1982:4;

3. **Small and new firms, 1982-1984**. Those firms falling in the top 5% in absolute employment during 1984:4 for those firms that were either:
    a. created between 1982:4 and 1984:4 or,
    b. had less than five employees in 1982:4;

4. **All other firms, 1982-1984**. Those firms falling in the top 5% proportional growth between 1982:4 and 1984:4.

Once the high growth firms were identified using these criteria, and the overlap between the 1979-1982 period and the 1982-1984 period eliminated, this sample of 793 high growth firms was compared to those firms already in the other four strata. Of this high growth sample, 564 had already been included in one of the other strata, leaving 229 additional high growth firms that were added to the sample in Stratum 4. When all five strata were taken together, the total number of firms sampled was 2,764. Appendix C describes the sampling procedures in more detail.

Verification. Once the sample was drawn from the MESC records by the ISR Sampling Section, the process of verification began. Firm names and addresses taken from the records had to be verified to separate those firms that had gone out of business since 1984:4 or had moved outside of the County. Verification was also necessary to determine the correct address for firms within the County, since the MESC records often give a reporting address outside the County from which MESC records are sent. This address may be a parent company, a CPA firm, or a headquarters office. All of these possibilities meant that using an MESC address and firm name might not result in a survey being sent to an accurate Oakland County address.

In order to verify the actual location of the firms in the sample, and where possible, to obtain the name and title of the chief officer of the firm, several procedures were used. These procedures are described below:

1. The list of establishments in the sample was entered on a PC-File system which would allow for tracking and updating through the verification and data collection process. This data base includes firm name, address, telephone number, SIC code, MESC employment number, replicate number, MESC employment size, name of the chief executive, and a set of codes designed to keep track of the status of the firm throughout the data collection process.
2. A commerical mailing list, developed by Contacts Influential of Southfield, Michigan, was compared to the MESC-derived sample. In the approximately 50% of the cases where the sample firms were included on the Contacts Influential list, the name of the chief executive, the Oakland County street address, and phone number were added to the PC-File. Contacts Influential updates its list by calling each firm on a yearly basis.
3. For the remaining half of the sample, the ISR project team searched through phone books and directory assistance in an effort to verify firm names and locations. When a number was obtained, the firm was telephoned, informed of the study, asked to verify the firm name and address, and provide the name of the chief executive. These efforts to verify firms involved approximately 1700 telephone calls from February through May of 1986.

4. Problems were encountered regularly that stemmed from the reporting addresses often used for firms on the MESC records. In those cases where the reporting address was within the State, phone calls were made in an effort to track the MESC entry back to a verified Oakland County street address. Limited resources for this phase of the project prevented telephone tracking of those firms with out-of-state MESC reporting addresses.

This combination of steps resulted in a sample of 2,248 firms for which we had verified addresses and, in nearly all cases, the name of the chief executive or one of the major officers. This list comprised the mail-out sample -- the actual list of firms to which questionnaires were mailed.

The Survey Instrument: Development and Pre-Testing

Development of the survey began in October, 1985 with a review of instruments used in several recent studies of new business growth and economic development and a comparison of these studies with the theoretical model (Hart and Denison, 1987). The content from these studies was then combined with the interests of the Oakland County Economic Development staff to produce the first rough draft of the survey. This draft was revised and refined several times in late 1985 and early 1986 and then was distributed to the Economic Development staff for comments and suggestions.

Once these changes and suggestions were incorporated in another complete draft of the instrument, the survey was sent to ten chief executives of local businesses, primarily in the Ann Arbor area. Their comments about the survey were then incorporated in a final set of revisions, made by both the ISR project team and the Oakland County Economic Development staff before printing the survey.

The survey, included in Appendix B, covers a wide variety of issues that affect Oakland County firms. The instrument begins with a set of questions on the nature of the business, ranging from industrial sector to product lines, sales mix, and dependence on the auto industry. Stage of development, percent unionization, and the firm's orientation toward growth and development are also included in this section. The second section of the survey is specifically oriented toward new firms (less than five years old), and asks about their formation and start-up. Sections Three through Five of the survey focus on locational factors, the use of business services, and operating problems, respectively; and Section Six asks about the employment outlook in a number of different job categories. Section Seven asks a set of questions about the economic outlook for the County and the region, and

Section Eight ends the survey with a set of questions about management and organization, followed by several questions about each firm's performance.

The Data Collection: Mail-Out and Follow-Up

Data collection began on June 25, 1986 with an initial mailing of the instrument, a return envelope, and a cover letter. The cover letter came from the head of the Oakland County Economic Development Group and is included in Appendix B. This mailing was followed three weeks later by a postcard reminding the firms that a survey had been sent and that we had not yet received a completed response from them. This prompt was followed three weeks later by another prompt, this time by letter to all firms that had still not yet responded.

This initial mailing and follow-up resulted in a disappointing return of only 250-300 surveys, a response rate of only 10-15%. For this reason, a second mailing and follow-up began in September. On September 25, a second mailing of the questionnaire, with a personally addressed cover letter from the ISR Project Directors and a return envelope, was sent to all firms that had not yet responded. This mailing was then followed by a personalized prompt letter to all firms that had not responded, and follow-up phone calls to the approximately 400 firms that seemed most likely to respond -- this included the largest firms in the sample and those that had telephone numbers that the ISR team had personally verified. In cases where the follow-up phone callers received a refusal to return the questionnaire, the callers attempted to conduct telephone interviews. A shortened version of the questionnaire was completed by 32 respondents in this manner. Telephone follow-up and data collection continued until mid-December at which time 675 completed surveys had been received. These questionnaires form the basis for the analyses presented in this report.

When a completed questionnaire was received, the survey was coded by the project team, who added special codes for open-ended questions, verified ambiguous responses by calling the firm or checking the consistency of responses, and generally prepared the surveys for entry into the computer. All valid responses were also recorded on the PC-File system developed to track data collection.

Once the coding process was complete, the questionnaires were then entered on the computer by the Data Entry staff at ISR. When the data were all on MTS (Michigan Terminal System) analysis began using the ISR statistical research package OSIRIS IV. The results of these analyses are described below in Chapters Three, Four, and Five.

Response Rates, Accuracy, and Weighting

Response Rates. As a preliminary step in the analysis of the data we first examined the response rates by size category and SIC code. These results are presented in Table 2.2. This table presents the response rates for the different possible combinations of size and industry. Two important points should be noted: First, response rate generally increases with size -- larger firms were more likely to respond than were smaller firms. Second, the response rates were quite consistent across industry category: with the exception of retail trades (a lower priority segment of the sample) the response rates in this study were very consistent.

It should also be mentioned that this table presents a conservative estimate of response rate. Even though the verification process helped screen out as many firms as possible that had gone out of business, or moved out of the County, the 2,248 firms to whom surveys were actually mailed inevitably included firms that were no longer doing business within the County. Rather than try to estimate that proportion (certainly less than 5%), we chose to calculate response rates based on the entire mail-out sample.

Accuracy. The probability sample used in this study allows for the accuracy of individual results to be determined. Given that the accuracy of an individual estimate depends upon the variation of that estimate in the population, each variable in the study has a different level of accuracy. Specific measures of precision vary for each of the critical measures, but when applied to the entire County, the margin-of-error, in most cases, is less than plus or minus 5%. In those cases where subsets of the data are being examined, as in the next two chapters, a different decision-rule about accuracy applies: whenever the subset includes approximately 50 or more large firms, or 100 or more small firms, the accuracy can be assumed to be in the range of 5-10%.

Weighting. The sampling procedure described above provides a known probability of selection for each firm in the Oakland County region. Large firms -- over 60 employees in the target sample in Stratum 1, or over 240 employees in Stratum 2 -- are certain to be included in the sample, as are high growth firms and corporate headquarters. For all other firms, the probability of selection is proportional to their MESC employment size: thus the more employees, the higher the probability that the firm will be included in the study sample.

As mentioned earlier, this system of known probabilities allows for the results of the study to be weighted so as to represent the entire population from

Table 2.2. Response Rate by Size and Industry

INDUSTRY	SIZE						TOTAL	%
	1-5	6-25	26-100	101-500	501+	M.D.		
Agriculture, Mining, and Construction	1/7	6/30	6/17	3/9	?1/1	0/0	17/64	26%
Manufacturing	6/20	48/186	75/271	44/109	6/19	0/0	179/605	30
Transportation, Communication, & Utilities	0/6	7/32	9/23	8/12	1/4	0/0	25/77	32
Wholesale	8/41	47/151	29/125	7/30	1/5	0/1	92/353	26
Retail	3/14	11/49	9/69	15/60	7/21	0/2	45/215	21
Finance, Insurance, and Real Estate	10/28	16/66	28/83	17/38	? 5/10	0/0	76/225	34
Services	21/99	66/234	79/228	44/109	20/38	1/1	231/709	32
TOTAL	49/215	201/748	235/816	138/367	41/98	1/4	665/2248	
Percent	23	27	29	38	42	25	30	

which the sample was drawn. This allows for estimates of total employment by industrial sectors, job categories, organizational size, or for estimates of the projected economic climate in the County for all firms. This system of weights has two main components: one weight that adjusts for the original probability of selection, and a second weight to adjust for non-response. These two weights are combined to create an overall weight used in analysis. Separate weighting procedures are used to project the results for the entire population of employees and the entire population of firms. These weights are used frequently for the results presented in Chapters Three, Four, and Five of this book, and the results are often presented three ways; unweighted, firm-weighted, and employment-weighted. Appendix C provides further documentation of these sampling procedures.

CHAPTER THREE: CHARACTERISTICS OF COUNTY FIRMS

The first step in understanding the composition of the County economy is to describe the different types of firms in our sample, and in the County portfolio. This chapter presents some of the basic demographics of Oakland County firms -- population characteristics such as industrial sector, firm size, and age, as well as factors like firm origin, growth rate, and stage of development. The chapter also describes firms with respect to characteristics such as sourcing and exporting activity, level of technology, and auto dependence. Overall (univariate) results are presented for each demographic variable followed by an analysis of their interrelationships. Following this, Chapter Four presents an analysis of the perceptions of these firms, and Chapter Five analyzes the perceptions of different types of firms using the same categories of firms described here.

Industrial Sector

One of the first questions in the survey asked respondents to select one of 19 business categories that best describe their firm or organization. This classification, in addition to the SIC code drawn from the MESC data base, gave us detailed information regarding industrial sector. The results for this question are presented in Table 3.1.

The responses from these 19 categories were then collapsed into six general sectors for the purposes of further analysis. The proportion of firms comprising each of these sectors is presented in Table 3.2. Unweighted, firm weighted, and employment weighted results are presented. As might be expected given the sample design, the manufacturing sector dominates in the unweighted results, with 35% of the respondents falling into this category. The employment weighted data also present a similar picture, underscoring the importance of the manufacturing sector in the County.

Table 3.1. **Survey Responses by Industry**

Sector	N
Retail Trade	65
Wholesale Trade	48
Manufacturing	182
Construction	17
Transportation	15
Communication	10
Public Utility	1
Finance	23
Insurance	37
Real Estate	16
Business Services	90
Personal Services	8
Health Services	32
Legal Services	17
Social Services	6
Educational Services	20
Agriculture	2
Mining	1
Other	72
Missing	3
TOTAL	662

While only about 14% (2,390) of County firms are manufacturers, the employment-weighted data indicate that nearly 30% (110,974) of the jobs are in manufacturing. The Retail sector, with a large number of small establishments, is second in terms of employment. Business and Personal Service sectors also account for a substantial proportion of the County's jobs, and, as we will see later in the report, most job creation has occured in these service sectors. In addition to providing an overview of County employment and economic composition, these data also provide an interesting baseline from which to monitor changes in the mix of the County economy in future years of the survey.

Table 3.2. Survey Responses by Industrial Sector

Sector	Unweighted		Firm Weighted		Employment Weighted	
	N	%	N	%	N	%
Retail	65	12%	5,206	29%	100,058	25%
Wholesale	48	9	1,418	8	22,286	6
Manufacturing	182	35	2,390	14	110,974	28
Finance & Insurance	60	11	1,540	9	29,546	7
Business Services	90	17	2,547	14	40,114	10
Other Services	83	16	4,667	26	94,115	24
TOTAL	528	100%	17,768	100%	397,093	100%

Level of Technology

In an increasingly competitive and globally-oriented business environment, the level of a firm's technical sophistication becomes an important element of competitive advantage and strategy. Two measures were used to gain an understanding of the degree to which firms in the Oakland County Business Survey were "technology-based": (a) the percentage of annual budget spent on research and development (R&D -- Q.A8 in the instrument); and (b) the percentage of employees with scientific and technical training (S&T -- Q.F4 in the instrument).

The first measure was split into three categories (no R&D, low R&D, and high R&D) while the second measure was dichotomized (low S&T training or high S&T training) based upon median scores on the two variables. A measure of technology-base was then created as a synthesis of the above two variables as follows:

Low Technology Base = no R&D, low S&T training;

Medium-Low Technology Base = no R&D, high S&T; or low R&D, low S&T;

Medium-High Technology Base = low R&D, high S&T; or high R&D, low S&T;

High Technology Base = high R&D, high S&T.

Table 3.3 presents the distribution of respondents on the technology-base measures. The results are strikingly similar for both the weighted and unweighted data, indicating that there is little relationship between firm size and technology-base. Indeed, whether the firm-weighted or employment-weighted data are used to estimate the pattern for the County as a whole, roughly one-third of the firms and one-third of the workforce are not oriented toward technology. Another third might be described as "low-tech." Based upon this criteria, *only about 10% of Oakland County firms can be considered strongly oriented toward high technology.*

Table 3.3. Survey Responses by Level of Technology

Level of Technology	Unweighted N	Unweighted %	Firm Weighted N	Firm Weighted %	Employment Weighted N	Employment Weighted %
Low	106	30%	5,755	43%	71,151	34%
Medium-Low	127	36	5,024	37	75,374	36
Medium-High	81	23	1,606	12	46,775	22
High	39	11	1,062	8	16,893	8
TOTAL	353	100%	13,477	100%	210,193	100%

Stage of Development

It is widely recognized that firms, like people, follow a life cycle with some predictable stages of development. Understanding the distribution of the County portfolio across these stages, as well as the needs of individual firms at different stages, was one of the important objectives of this study. For this purpose, firms were first categorized into one of the following five stages:

- **Pre start-up or start-up.** Firms or establishments where products were still in development or where the organization was still being financed through external (debt or equity) sources;
- **Accelerated Growth.** Firms or establishments that were growing rapidly;
- **Steady Growth.** Firms with predictable profit and moderate growth;
- **Stable.** Firms holding a steady share of the market;
- **Declining.** Firms or establishments losing customers and market share.

Table 3.4 presents the distribution of respondents by stage of development. It should be quickly apparent from both the weighted and unweighted data, that the number of firms and jobs in the declining category exceed substantially those in the start-up category.

Table 3.4. Survey Responses by Stage of Development

Category	Unweighted N	Unweighted %	Firm Weighted N	Firm Weighted %	Employment Weighted N	Employment Weighted %
Pre start-up/ Start-up	18	3%	384	2%	6,081	2%
Accelerated Growth	85	14	2,426	11	53,308	12
Steady Growth	280	45	9,178	40	184,346	42
Stable	198	32	10,203	44	170,613	39
Declining	40	6	772	3	21,924	5
TOTAL	621	100%	22,963	100%	436,272	100%

As Table 3.4 shows, *only about 12% of County business organizations and employees are associated with emerging products or accelerated growth.* In contrast, about 80% of the economic activity takes place in steady growth or stable organizations. Tracking this portfolio over time may suggest specific policies designed to maintain the balance at firms of different stages of development.

Firm Size

Firm size was tabulated using respondents' estimates of average full-time equivalent employment during 1985. As can be seen in Table 3.5, the respondents, like the sample, reflect a cross-section of Oakland County firms. The distribution of respondent firms reflects the underlying PPS sampling design: there are fewer small firms in the respondent group (the unweighted results) than one would expect for the County as a whole (firm weighted results). In addition, a greater proportion of firms over size 100 is found here than one would expect for the County as a whole. The appropriateness of the sample is further confirmed, when one observes that the percentages of firms in the different size categories for the unweighted results fall somewhere in between those for the firm-weighted and the employment-weighted.

Table 3.5. Survey Responses by Firm Size

Number of Employees	Unweighted N	Unweighted %	Firm Weighted N	Firm Weighted %	Employment Weighted N	Employment Weighted %
1-5	236	39%	17,880	78%	102,907	26%
6-25	122	20	3,070	13	52,633	13
26-100	99	17	1,045	4	46,156	11
101-500	115	19	850	4	104,684	26
> 500	30	5	223	1	94,866	24
TOTAL	602	100%	23,068	100%	401,246	100%

In a descriptive sense, Table 3.5 shows that *nearly 80% of Oakland County firms employ between one and five persons, but that these firms represent only about a quarter of the employment base.* Conversely, while only about five percent of the firms in the County employ more than 100 people, these firms account for over half of all the existing jobs in the County. Analyses presented in Chapter Five show that even though most existing jobs are in larger firms, the highest rates of employment growth are in smaller firms.

Firm Origin

An important consideration for economic development is the source or origin of new business activity. Are most new firms and jobs generated by local entrepreneurs and companies or are they created by firms recruited from outside of the region? Table 3.6 contains the results from Q.B5 in the survey that asked where the founding individuals lived prior to new firms' start-up. For those responding to this question (235), 70% resided in the same area where their firm is now located, while another 21% came from the southeastern Michigan area. Less than 10% of new businesses in Oakland County were created by people coming from outside of the southeastern Michigan area. Both of the weighting procedures, as well as the unweighted data, support this finding. Thus, *the vast majority of new business activity in Oakland County is "homegrown."*

Table 3.6. Survey Responses by Founder's Origin

Where From	Unweighted		Firm Weighted		Employment Weighted	
	N	%	N	%	N	%
Same Area	164	70%	7,489	79%	92,429	68%
S.E. Michigan	49	21	1,478	15	29,189	21
Outside of S.E. Mich.	22	9	529	6	14,268	11
TOTAL	235	100%	9,496	100%	135,886	100%

Question B4 sheds further light on this issue by asking where the founding individuals worked prior to firm start-up. Table 3.7 presents the results for this question. For those responding to this question (164), over 90% were involved with an existing company in one way or another -- either retaining their relationship through a subsidiary or partnership, or spinning off from a company to begin a new, independent venture. Less than 10% of new business activity came from non-profit organizations or universities. Thus, *most new business activity not only begins locally, but also emerges from existing enterprises in the immediate area.* The implications for economic development seem clear: focus as much time and energy in growing businesses locally as seeking to recruit businesses from distant states or countries.

Table 3.7. Survey Responses by Firm Origin

Origin	Unweighted N	Unweighted %	Firm Weighted N	Firm Weighted %	Employment Weighted N	Employment Weighted %
Established by existing company	78	48%	2,087	39%	43,509	42%
Spin-off from a corporation	55	34	2,247	42	22,465	22
Resulted from merger or acquisition	17	10	660	12	10,102	10
Spin-off from a non-profit	10	6	284	5	23,802	23
Spin-off from a university	4	2	101	2	3,351	3
TOTAL	164	100%	5,379	100%	103,229	100%

Exporting Firms

Exporting is a clear indicator of the degree of involvement in the global, rather than the national or local economy. Exporting has clear positive implications for the regional economy -- exporting products and retaining jobs and income is much more desirable than importing components and exporting jobs and income. Question A4 in the instrument measured the extent to which firms in the manufacturing, fabrication, assembly, and business service sectors exported their products or services outside the State of Michigan.

The results indicate that Oakland County is primarily national in its economic orientation. Nearly one-third (32%) of respondents indicated that they exported none of their primary product outside of the State of Michigan, and another one-third (38%) exported between 1 and 40% of their primary product. Eleven percent exported 41-60% of primary product while roughly 20% indicated that they exported between 61 and 100% of their primary product outside the state.

The data also show that 21% of the firms responding export their products outside of the U.S. Even though this suggests a relatively international perspective for County businesses, only nine percent of respondents indicated that they had made use of a private, state, or federal foreign trade consultant; and in the open-ended questions, several indicated an interest in having a Japanese trade representative, or other foreign trade consultant. This situation may suggest an innovative service that the Oakland County Economic Development Group might provide.

Sourcing Activity

The degree to which companies purchase parts, components or materials from regions outside the County, State or Nation is also an important indicator of economic structure and the degree of involvement in the emerging global economy. It also has direct implications for the volatility of the local and regional employment outlook.

Question A7 in the instrument addressed this question directly for the manufacturing, fabrication, assembly, and business service sectors. The results are presented in Table 3.8 below. While the four categories in the table are not exclusive (i.e., firms could check more than one), they do indicate general tendencies and should be particularly instructive when examined longitudinally.

The results clearly indicate that *Oakland County is primarily national in its sourcing activity, with nearly half of the respondents using suppliers outside of Michigan.* Only 13% reported that they were involved in global sourcing. Furthermore, the comparability of the firm- and employment-weighted results suggest that sourcing behavior does not differ appreciably by firm size (i.e., small firms are as likely to source nationally and globally as large firms).

Table 3.8. Percentage of Purchased Parts, Components, or Materials Coming from Different Sources

Source	Unweighted Mean	Firm Weighted Mean	Employment Weighted Mean
Oakland County	32%	45%	33%
Michigan (outside Oakland County)	34	32	33
United States (outside Mich.)	48	48	47
Abroad	13	9	13

Auto Dependence

Michigan has long recognized its dependence on the automobile industry, and the associated need for diversification. Question A6 measures this level of dependence for firms in the manufacturing, fabrication, assembly, and business service sectors in Oakland County. The results indicate a strongly bi-modal distribution with the greatest number of respondents reporting 100% dependence for their primary products and the next most frequent response reporting zero dependence. Indeed, one quarter of respondents indicated that their primary product or service was 100% auto-related; and another quarter indicated that their primary product was unrelated to the automobile industry. Roughly another quarter (31%) estimated their primary product or service as being 1-50% auto-related and the remainder (23%) estimated auto-dependence between 51 and 99 percent. Like the sourcing and the exporting measures, auto-dependence will be an important variable to track over time.

Firm Age

Related to the issue of firm origin discussed above is firm age. Understanding and tracking the rate of new firm creation in a given area is an important prerequisite to effective economic development. In this analysis, new firms were defined as those created since 1979 (question B2 in the survey.) Of the 502 respondents for the question, 103 (21%) were "new" firms and 399 (79%) were created prior to 1979. *Thus, about twenty percent of our sample of County firms are new.*

Growth Rate

As described in Chapter Two, firms in the top 5% in terms of employment growth between 1979-82 and 1982-84 were labelled as "high growth" firms so that they could be identified them for further analysis. Table 3.9 contains the descriptive data for these firms.

Of the 665 respondents, 189 (28%) fall in the high growth category. This primarily reflects the fact that we oversampled high-growth firms. Projecting this result to the County as a whole translates into slightly more than one thousand (1034) rapidly growing firms out of over twenty thousand firms in the County, about what might be expected given our sampling criteria. As the firm-weighted results show, this represents only 4% of County businesses. From an employment perspective, however, this shows that 80,000 people, or nearly 18% of the County's 450,000 jobs are located in high growth businesses. As we will suggest below, there may well be policy implications in this finding.

Table 3.9. Survey Responses for High Growth Firms

Category	Unweighted		Firm Weighted		Employment Weighted	
	N	%	N	%	N	%
High Growth	189	28%	1,034	4%	82,764	17%
Not High Growth	476	72	23,539	96	393,756	83
TOTAL	665	100%	24,573	100%	476,520	100%

Firm Location

The new buildings and firms stretching along the I-696 expressway in southern Oakland County is perhaps the most visible evidence of "Automation

Alley." The I-696 Corridor in Oakland County is an important geographic center for emerging economic activity in the County and is an important target of this study. For subset analysis, the zip codes in the corridor were used to identify firms in the area. A list of these zip codes is included in the Appendix D and a map of the County and the I-696 corridor is presented in Figure 3.1.

As Table 3.10 shows, nearly one-third of the respondents reside within the I-696 Corridor area. Similar proportions appear for the firm-weighted and employment-weighted results, indicating that this area does account for a disproportionate share of the business activity in the County, and shows about the same proportion of small and large firms as the rest of the County.

Table 3.10. Survey Responses by Location

Category	Unweighted N	Unweighted %	Firm Weighted N	Firm Weighted %	Employment Weighted N	Employment Weighted %
In I-696 Corridor	239	36%	9,372	38%	130,069	27%
Not in I-696 Corridor	426	64	15,201	62	346,451	73
TOTAL	665	100%	24,573	100%	476,520	100%

Firm Performance

Firm performance is an important characteristic both from a descriptive and prescriptive point of view. Descriptively, understanding the portfolio of firms' performance in the County is useful infomation. Prescriptively, analyzing the special problems and needs of poorly performing firms and the nature of highly performing firms can provide excellent insight for policy and program development.

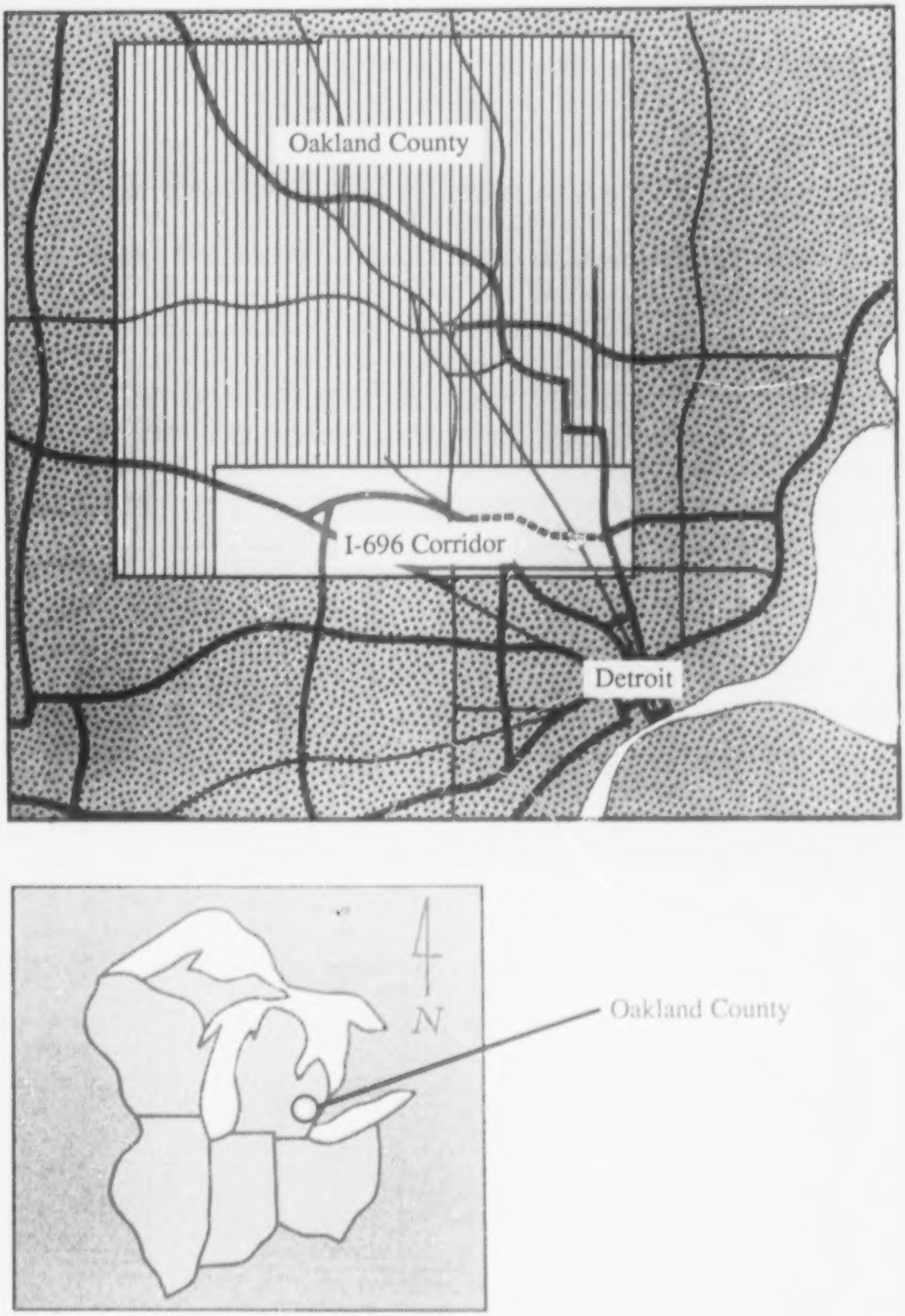
Oakland County
I-696 Corridor
Detroit
N
Oakland County

Figure 3.1. Oakland County, Michigan, and the I-696 Corridor

The survey included multiple assessments of firm performance, relying upon both subjective and objective measures. Subjective measures included ratings of firm performance in the areas of new product development, sales growth, market share, profitability, and overall performance. Respondents rated their firm or establishment, compared to other firms in their industry or market, on a scale ranging from 1 (low performer) to 7 (high performer). Here we analyze only the results for the subjective ratings of overall company performance. Of the 599 respondents to this item, the mean was 5.1 and the median, 5.3. The median score was used to bracket the sample into high and low performance categories for further analyses presented later in this book.

To gain further insight into the distribution of County firms in terms of overall subjective performance, the scale was collapsed into five categories. Categories 1-3 on the original scale were combined into a single category labelled "low", and the remaining four categories were labelled medium-low, medium, medium-high and high. Table 3.11 presents the distribution of respondents on this scale. Using this approach, 50-60% of firms in the County appear to be medium to medium-high performers while only 20-25% are medium-low. Once again, these data provide an important baseline for monitoring and facilitating business development in the County in the coming years.

Table 3.11. Survey Responses by Level of Firm Performance

Level of Performance	Unweighted		Firm Weighted		Employment Weighted	
	N	%	N	%	N	%
Low	60	10%	1,715	8%	41,102	10%
Medium-Low	126	21	3,714	17	100,477	24
Medium	175	29	8,386	38	103,440	25
Medium-High	170	29	6,025	27	122,338	29
High	68	11	2,015	10	48,025	12
TOTAL	599	100%	21,945	100%	415,382	100%

Objective measures of firm performance included a three-year average for Return on Investment (ROI) (1984-1986), a five year average for Return on Sales (1981-1986), and Employment Growth for the year 1985-1986. The results are presented in Table 3.12. The table shows tremendous variability in performance and a large difference for the mean and median on the measures. These results also show a significant non-response problem for the ROI measure. Nonetheless, these performance measures prove invaluable in distinguishing between the needs and problems of high- and low-performing firms in later analyses.

Table 3.12. Objective Firm Performance

Measure	N	Median	Mean	S./D.
Return on Investment (3 year average)	164	10.8%	19.0%	41.8%
Sales Growth (5 year average)	314	16.7	75.0	435.1
Employment Growth (1985-86)	220	4.8	10.7	22.9

Interrelations Among Firm Characteristics

The firm characteristics described above occur in many different combinations: for example, high-growth technology firms may be start-ups oriented toward exporting, or declining firms may be older manufacturing firms highly dependent on the automobile industry. In order to understand better the combinations of characteristics that are prevalent within the County economy, a series of bivariate analyses were done on the firm characteristics described above. This section summarizes the results that reached a high level of statistical significance and appear to have clear implications for local and regional economic development.

The probabilities reported in this section (e.g., $p<.001$) indicate the likelihood that the close association between two of the characteristics could have occurred by *chance*. Thus, results with a very low level of probability are very likely to represent a true association, rather than an outcome attributable to chance. These probabilities were obtained using the Chi-square statistic.

Industry Sector. In general, manufacturing and business service firms are the most rapidly growing in terms of employment while retail and other services are the slowest growing (p<.001). Business service and manufacturing also lead the way in producing start-up companies, with manufacturing having the largest fraction of declining companies (p<.001). The largest fraction of accelerated growth firms are in the business service, finance and insurance, and wholesale sectors, with finance and insurance also showing the largest share of steady growers (p<.001). The largest proportion of stable firms are in the personal services sector (p<.001).

With regard to firm origin, business and personal services, and wholesale firms are most frequently homegrown while retail firms most often relocate from southeast Michigan or outside of the area (p=.06). Finance and insurance firms also tend to move in from outside of the region. Manufacturing tends to fall somewhere in the middle with regard to firm origin.

The manufacturing and business service sectors tend to have more medium-sized firms (26-500 employees) while retail and personal services sectors have the largest number of large (over 500) firms (p<.001). More manufacturing and business service firms also tend to be technology-based (p<.001). Finally, manufacturing firms are by far the biggest exporters (p<.001).

Technology-based firms. Technology based firms tend to be newer firms (p=.07), located primarily in the manufacturing and business service sectors (p<.001). These firms also tend to be rated by their CEOs as better performers (p=.02), and are much more likely to be involved in foreign exporting.

Stage of Development. Those firms in the accelerated growth and declining stages are most likely to be involved in foreign exporting (p<.001), while CEOs in the accelerated and steady growth stages rated their firms as performing the best (p<.001).

"Homegrown" firms. Homegrown firms represent the only significant source of start-up firms, and tend to be less involved in foreign exporting than those firms whose founders were from outside of the region (p<.001).

Exporting firms. Firms that are heavily involved in foreign exporting tend to be manufacturers in the accelerated growth or declining stages of their development (p<.001). These exporting firms also tend to be more technology-based and are more often transplanted from outside of the Southeastern Michigan area (p=<.001). In this sample, there is no significant relationship between firm size and exporting activity.

New Firms. As noted above, most new firms come from the immediate area and tend to be more technology-based (p=.09). Most new firms are also in the business service and wholesale sectors rather than manufacturing (p=.01).

Firms located in the I-696 corridor. The I-696 corridor is dominated by firms in the business service and wholesale sectors (p<.001). Firms in in this location also tend to be medium-sized firms (p=.02) that are much more likely to have moved to the location from another part of Southeastern Michigan (p=.03). Finally, corridor firms also tend to be much less likely to export (p<.001).

Summary

This chapter has provided a basic overview of the characteristics of the County economy, both in terms of the sample of respondents and in terms of the projections for total numbers of firms and jobs in the various sectors. The overall picture is one of an economic base primarily dominated by manufacturing, with a secondary concentration of jobs in small retail establishments, and a smaller, but more rapidly growing employment base in business services. Of the total, only about one-third of the firms are oriented toward technology and only about 10% should be considered high technology. Eighty percent of County jobs are in steadily growing or stable organizations, with the balance split almost equally between start-ups or rapid growers and declining firms. Eighty percent of the firms employ between one and five people, but these account for only one-quarter of the employment base. In contrast, about 5% of the firms employ more than 100 people, and these firms account for over one-half of all existing jobs in the County.

About 90% of the new firms formed within the last seven years were created by founders already in the Southeastern Michigan area and most emerged from existing businesses. Most firms export their products outside of the state, and 21% export outside the U.S. Nearly half of the firms use suppliers outside of the state and 13% reported sourcing outside of the U.S. Approximately one-third of the County firms are located in the I-696 corridor and are most often mid-sized firms in wholesale or business service sectors that have located in that area from another part of Southeastern Michigan.

Now that the groundwork has been laid by this basic overview of business demographics, the following chapters begin to examine the perceptions of these firms regarding the County as a place to do business, and their projections about the economic and employment outlook for the future.

CHAPTER FOUR: PERCEPTIONS OF COUNTY BUSINESSES

This chapter presents an analysis of the perceptions of *all* County businesses in the sample regarding locational factors, operating problems, the use of business services, and the outlook for employment and the local economy. It provides an overall picture of the important issues for Oakland County businesses as a whole. The chapter begins with a reporting of the univariate results, emphasizing those items that are particularly important to area firms. The individual items from the survey are then factor analyzed -- a statistical test to determine if a set of interrelated items can be combined into a single index -- and the resulting indexes are presented and discussed for each of the categories: location factors, operating problems, the use of business services, and the outlook for employment and the economy. Analyses of these factors for different types of firms are then presented in Chapter Five.

Location Factors

One of the areas where local government can have a real impact on business and economic development is in regard to location factors. Through taxes, subsidies, regulations, zoning and other methods, the County can foster and channel the development process. It is particularly important, therefore, to analyze firms' perceptions about location factors in the County so that such policies can be as responsive as possible. Section three in the survey instrument addressed the issue of location factors. The results for this section are in Table 4.1. Again, the weighted and unweighted mean scores for all respondents are presented for each item. Unlike the previous section, however, the rating scale measures the degree to which each item is perceived as an incentive or disincentive to locating in Oakland County, with 5 representing a "strong incentive" and 1 a "strong disincentive;" a rating of 3 indicates that the respondent felt that the item was neutral -- that it had no real impact on location decision making in the County.

As can be seen from the data, a handful of items again emerge as the major incentives to locating in Oakland County. In order of importance, these include:

Table 4.1. Results for Locational Factors

How much of an incentive was each of the following factors in your firm or facility's decision to choose your present location or to expand at your present location?

1	2	3	4	5
Strong Disincentive	Moderate Disincentive	Neutral	Moderate Incentive	Strong Incentive

Item	Unweighted Mean	Firm Weighted Mean	Employment Weighted Mean
b. Proximity to markets/customers	4.3	4.2	4.4
r. Availability of space & facilities	3.8	3.7	3.8
aa. Overall quality of the locality	3.8	3.6	3.7
dd. Proximity to owner's or employees' residence	3.8	4.0	3.7
cc. Long-term growth potential for the area	3.7	3.7	3.8
k. Quality of the local environment	3.6	3.7	3.6
q. Cost of space and facilities	3.6	3.6	3.6
gg. Quality of roads and highways	3.5	3.4	3.5
f. Proximity to suppliers/vendors	3.3	3.2	3.2
ee. Availability of qualified managerial people	3.3	3.0	3.2
ff. Attitudes of local banking community	3.3	3.2	3.3
kk. Security	3.3	3.3	3.3
a. Availability of technical and scientific people	3.2	3.0	3.2
e. Availability of qualified production workers	3.2	3.1	3.2
n. Attitude of community toward business	3.2	3.1	3.2
v. Quality of housing	3.2	3.0	3.2
m. Proximity to other companies in the same business	3.1	3.0	3.1
o. Quality of the school system	3.1	3.0	3.1
t. Availability of educational/training programs	3.1	3.0	3.1
d. Cultural and entertainment attractions	3.0	2.8	3.0
i. Access to a university or college	3.0	2.9	3.0
j. Local zoning and building codes	3.0	3.1	3.1
s. Quality of health care	3.0	3.0	3.1
w. Ground transportation system	3.0	2.9	3.1
y. Convenience to good air transportation	3.0	2.8	2.9
jj. Availability of funding	3.0	2.9	3.1
g. Presence of economic development programs	2.9	2.9	3.0
h. Recreational opportunities	2.9	2.9	2.9
l. Access to corporate laboratories	2.9	2.8	2.9
u. Cost of utilities -- gas	2.9	2.8	2.9
x. Cost of utilities -- electric	2.9	2.8	2.9
z. Local wage rates	2.9	2.9	2.8
c. Local property taxes	2.8	2.7	2.8
p. Access to government or private laboratories	2.8	2.8	2.8
bb. Workers' compensation	2.3	2.3	2.4
hh. Single business tax	2.3	2.3	2.4
ii. Unemployment compensation	2.2	2.3	2.3

1. Proximity to markets/customers;
2. Availability of space and facilities;
3. Overall quality of the locality;
4. Proximity to owner's or employee's residence;
5. Long-term growth potential for the area;
6. Quality of the local environment; and
7. Cost of space and facilities.

Incentives most important to firms in the emerging County economy center on the quality of the local environment, its growth potential, and its proximity to markets and residences. Less apparent are the traditional smokestack location factors such as utility cost, wage rates, transportation, and taxes. Indeed, these items all scored in the neutral category, suggesting that they do not play as important a role in the location decisions of today's businesses as they once might have. This interpretation is borne out by the items listed as the most important locational factors in open-ended Q.C2; these included proximity to the customer base, owners' residence, availability of space, quality of life, and the overall business climate. Thus, the results indicate that *the general health of the community and overall "quality" of the locality are the key factors in business location decisions.*

Even the lowest-scoring items in Table 4.1 seem to indicate that there are few if any real disincentives to business location in Oakland County. Even those well-known state policies which often get cited as major impediments to economic development -- worker's compensation, the single business tax, and unemployment compensation -- appear to pose only a moderate disincentives for businesses.

As noted above, the individual questionnaire items were factor analyzed for the purposes of data reduction and the construction of indexes based upon actual responses. The results of this factor analysis are presented below in Table 4.2. In addition to the items associated with each index, the table also presents the number of respondents and the mean score for each index.

The results of the factor analysis of the location items generally reinforce the univariate analyses. Eight factors emerged from the analysis, with two additional items being retained because of their expected practical and theoretical importance. Both individual items -- *Proximity to Markets* and *Proximity to Residence* -- turn out to be particularly important. These two items and the *Overall Quality* of the area were the three most important incentives to locating in the County. *Input Availability*, *Commercial Space*, *Housing*, and *Transportation* were also important incentives. Firms were more neutral toward traditional location factors such as *Business Climate* in terms of their decisions to locate or expand in the area. The

Sociotechnical Infrastructure also proved to be neither an incentive nor a disincentive as far as location decisions for the County as a whole. *State Taxes* were the only negative factor, and even this was only a moderate disincentive to location in the area.

Table 4.2. Location Factor Indexes

Dimension/Index	N	Mean	Items Included
Sociotechnical Infrastructure	544	2.9	– Government/private labs: access to university; corporate labs, quality of health care; recreational opportunities: cultural/entertainment: economic development programs: availability of managerial people.
Business Climate	550	2.9	– Electricity costs: gas costs; availability of funding: wage rates: property taxes.
Overall Quality	553	3.7	– Quality of the locality: security; environmental quality; long-term growth potential.
State taxes	550	2.3	– Unemployment compensation; single business tax; workers' compensation.
Commercial Space	557	3.5	– Cost of space: availability of space: zoning and building codes.
Housing	555	3.2	– Quality of housing.
Transportation	552	3.1	– Convenience to airport: ground transportation: quality of roads and highways.
Input Availability	554	3.3	– Proximity to suppliers: availability of scientific and technical people: availability of production workers.
Proximity to Markets[a]	578	4.3	– Proximity to markets/customers.
Proximity to Residence[a]	561	3.8	– Proximity to owners' or employees' residences.

[a] Single item indexes.

Overall, the results for the location factors indicate that the County has many attractive features and few problems. Its attraction stems primarily from the overall quality of the area, proximity to markets, customers, and housing, and the availability of space and critical inputs. More traditional business climate and infrastructure factors were less important for County firms as a whole. Later chapters will explore in more detail the specific locational criteria and preferences for different sizes and types of firms.

Operating Problems

It also important to understand the kinds of problems that firms experience since some of the more widespread problems may potentially be addressed through well-crafted economic development programs and policies. Section five of the survey was, therefore, dedicated to assessing the importance of a wide variety of operating problems for County firms. Table 4.3 contains the weighted and unweighted results for the items in the questionnaire relating to operating problems. The data on each of these items represents mean scores for all respondents, with 1 representing "no problem" and 5 representing "extreme problem." As can be seen from the data, a few operating problems seem to rise to the top of the list in terms of their importance to County companies. Both the weighted and unweighted results indicate that the following seven items are the most important operating problems for firms in Oakland County. In order, they are:

1. Health insurance costs;
2. Anticipating the future with regard to our business;
3. Domestic competition;
4. Overall state of the economy;
5. Attracting capable personnel;
6. Government regulation and red tape; and
7. Improving the firm's productivity and efficiency.

Health insurance costs topped the list in all cases (weighted and unweighted). Anticipating the future, domestic competition, and the overall state of the economy were next in importance and seem to cluster together conceptually under the domain of "globalization and strategic change." It seems that many County firms have a sense that conditions are changing but do not have a clear plan for how to adapt to the situation. Thus, while they are concerned with the overall state of the economy and anticipating the future, *there is still great emphasis on domestic competition and less emphasis on foreign competition* (mean= 2.1).

Table 4.3. Results for Operating Problems

How much of a problem do you expect each of the following to be for your firm in the coming year?

1	2	3	4	5
No Problem	Slight Problem	Moderate Problem	Major Problem	Extreme Problems

Item	Unweighted Mean	Firm Weighted Mean	Employment Weighted Mean
ff. Health insurance cost	3.0	2.8	3.0
i. Anticipating the future with regard to our business	2.8	2.6	2.8
dd. Domestic competition	2.8	2.4	2.9
gg. Overall state of the economy	2.8	2.5	2.7
e. Attracting capable personnel	2.7	2.8	2.7
p. Governmental regulation and red tape	2.7	2.6	2.8
y. Improving the firm's productivity and efficiency	2.6	2.3	2.7
b. Penetrating new geographic territories	2.5	2.2	2.5
n. Cost control	2.4	2.1	2.5
w. Increasing effectiveness of our managers	2.4	2.1	2.4
x. Improving skills of company employees	2.4	2.1	2.5
z. Enhancing employee morale and motivation	2.4	2.2	2.5
a. Identifying new market opportunities	2.3	2.2	2.3
c. Developing new products or services	2.3	1.9	2.3
v. Making our firm more adaptive	2.3	2.1	2.3
f. Keeping our best people	2.2	2.2	2.3
j. How to structure or expand a new company	2.1	2.2	2.1
r. Cash flow	2.1	2.1	1.9
cc. Foreign competition	2.1	1.7	1.9
k. Adequate facilities or space	2.1	2.0	2.2
u. Being able to continually meet demand	2.0	2.0	1.9
bb. Establishing an ongoing planning capability	2.0	1.9	2.0
g. New or improved production processes	1.9	1.6	1.8
t. Management information systems	1.9	1.7	2.0
aa. Business plan preparation	1.9	1.8	1.9
d. Securing financial resources or backing	1.8	1.9	1.8
m. Organizational roles, responsibilities, and policies	1.8	1.6	1.8
o. Internal bureaucracy	1.8	1.5	1.9
q. Financial systems and internal controls	1.8	1.6	1.9
h. Capability in research and development	1.7	1.6	1.8
l. Identifying reliable vendors or suppliers	1.7	1.7	1.8
s. Labor-management relations	1.7	1.4	1.7
ee. Export trade barriers	1.5	1.4	1.4

The final three problems on the list are more conventional operating problems. Difficulty in attracting capable personnel is clearly an area where the County could play a role. Similarly, state and local government can and are aiding problems associated with firm productivity and efficiency. Finally, government regulation and red tape seems to be the perennial favorite on problem lists in business surveys. While it lacks specificity, this item might be interpreted as a perceived problem of attitude -- i.e., it is often not the policies and procedures themselves but rather the manner in which they are implemented which create the perception of bureaucracy and red tape.

In contrast, those operating problems perceived as being the least important included the following eight. In order, they are:

1. Export trade barriers;
2. Labor-management relations;
3. Capability in research and development;
4. Financial systems and internal controls;
5. Internal bureaucracy;
6. Organizational roles, responsibilities, and policies;
7. Identifying reliable vendors or suppliers; and
8. Securing financial resources or backing.

Export trade barriers were seen as the least important operating problem -- perhaps an indication of the limited orientation that many firms have toward the global economy. The remainder of the items considered to be non-problems are curiously all internal organizational systems or processes (e.g., finance, suppliers, organizational structure, R&D, labor-management relations). While many of these items may well be less important than some of the external factors (e.g., state of the economy, or government red tape), there may also be a systematic bias toward viewing external problems as being the most severe.

As noted above, the individual questionnaire items were factor analyzed for the purposes of data reduction and the construction of indexes based upon actual responses. The results of the factor analysis for the Operating Problems items are presented in Table 4.4. Eight factors emerged from the analysis and a ninth item was retained for its practical and theoretical significance. In addition to the items associated with each index, the table also presents the number of respondents, and the mean score for each index.

Table 4.4. Operating Problem Indexes

Dimension/Index	N	Mean	Items Included
People	550	2.5	– Employee skills; productivity and efficiency; morale and motivation; managerial capability and effectiveness; attracting capable personnel.
Competitive Strategy	454	2.4	– Identifying new market opportunities; geographic expansion; developing new products or services.
Strategic Planning	394	2.3	– Establishing an ongoing planning capability; business plan preparation; structuring and expanding a new company; anticipating the future.
Operations Management	463	1.9	– MIS; meeting demand; defining roles, responsibilities, and policies; cost control; adapting to market shifts; reliable suppliers; financial systems and internal controls.
Money	533	2.2	– Cash flow; securing financial resources.
Production and Technology	331	1.9	– Improving production or manufacturing processes; capability in research and development.
Insurance and Regulatory Costs	519	3.1	– Health insurance cost; government regulation.
International Competition	277	1.8	– Foreign competition; export trade barriers.
State of Economy[a]	577	2.8	– Overall state of the economy.

[a] Single item index.

The indexes serve to complement the univariate analysis. External problems -- *Insurance and Regulatory Costs* and the *State of the Economy* -- again emerge as the most important operating problems. Internal problems such as *Competitive Strategy*, *People*, *Strategic Planning*, and *Money* are perceived to be much less of a problem. At the bottom of the priority list are three of the most critical problems as far as the popular press is concerned -- *Operations Management*, *Production and*

Technology, and *International Competition*. The degree to which this result represents a systematic bias toward external problems by County firms will be explored in the next Chapter where operating problems are analyzed for different types of firms.

Business Services

Section four of the instrument focused on the importance of different types of business services to Oakland County firms. In particular, the items were designed to gain an estimate of demand for different types of services in the coming year. These items are really an extension of the section on operating problems in that they focus on one type of operating decision faced by all firms -- the "make vs. buy" decision for services. Forecast data for business services demand by County firms can be of great use: it can help policy makers target those services where demand outstrips supply, and perhaps lead to the interim provision of such services and the recruitment of additional providers.

Table 4.5 contains the overall results for this section. In general, firms do not forecast extensive use of external service providers. Mean scores exceed or approach 3 (some use) on only three items -- printing and mailing services, accounting/tax services and legal services. These three services are really standard fare, required by all businesses to some degree. A factor analysis of the business service items, presented in Table 4.6, also supports this interpretation. Four indexes and four single items emerged from the analysis indicating that *Printing and Mailing* as well as *Legal Services* were expected to be in the greatest demand in the coming year.

The lower levels of aggregate demand for other services, particularly *Strategic Planning, Training and Outplacement*, require explanation and further inquiry. While these services are known to be crucial to the survival of many firms, the demand pattern is bound to be unequally distributed, with much greater need in some sectors than in others. Chapter Five identifies those firms in the County most in need of specialized services and may help to target assistance programs and opportunities for business service providers.

Table 4.5. Results for Business Services

How much of each of the following services do you anticipate your company will purchase next year?

1	2	3	4	5
None	A Little	Some	Quite a Bit	A Great Deal

Item	Unweighted Mean	Firm Weighted Mean	Employment Weighted Mean
a. Printing and mailing service	3.1	2.9	2.9
d. Accounting/tax services	2.9	3.1	2.7
f. Legal services	2.7	2.4	2.7
k. Advertising and marketing assistance	2.1	1.9	2.3
l. Computing and information management services	2.1	1.8	2.1
e. Duplication services	2.0	1.9	1.9
b. Contract employment services	1.9	1.7	1.9
i. Temporary employment services	1.8	1.5	1.9
h. Technical assistance (e.g., engineering)	1.7	1.5	1.8
c. Management consulting	1.5	1.3	1.6
o. Other	1.5	1.1	1.4
g. Personnel management assistance	1.3	1.2	1.4
j. Strategic planning assistance	1.3	1.2	1.4
n. Retraining services	1.3	1.3	1.4
m. Outplacement services	1.2	1.1	1.2

Table 4.6. Business Service Indexes

Dimension/Index	N	Mean	Items Included
Management Consulting	599	1.9	– Strategic planning; personnel management; management consulting; accounting/tax.
Employment	601	2.0	– Contract employment; temporary employment.
Training and Outplacement	595	1.3	– Outplacement; retraining.
Printing and Mailing	593	2.8	– Printing and mailing; duplication.
Legal[a]	607	2.7	– Legal services.
Technical[a]	603	1.7	– Technical assistance (e.g., engineering).
Marketing[a]	601	2.1	– Advertising and marketing.
Computing[a]	604	2.1	– Computing and information management services.

[a] Single item indexes

Organization and Strategic Management

The importance of internal organization and management is widely recognized as a key factor in understanding the differences between successful and unsuccessful firms. Particularly important is the approach to planning, decision making, and strategic management taken by the firm. Section eight in the survey instrument addressed this issue. The results for this section are presented Table 4.7.

Once again, a few items were consistently rated both higher and lower by Oakland County firms. The six items with which the respondents most strongly agreed follow. In order, they are:

1. There is a clear and consistent set of values in the company;
2. Working in this company is like being part of a team;
3. Cooperation and collaboration across functional roles are actively encouraged;

Table 4.7. Results for Organization and Strategic Management

Please assess the extent to which you agree or disagree that each item is an attribute of your company's planning, decision making, or strategic management.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Item	Unweighted Mean	Firm Weighted Mean	Employment Weighted Mean
h. There is a clear and consistent set of values in this company.	4.1	4.3	4.1
q. Cooperation and collaboration across functional roles are actively encouraged.	4.0	4.0	3.9
s. Working in this company is like being part of a team.	4.0	4.1	3.9
c. Our company continually adapts, based upon feedback from the marketplace.	3.9	3.7	3.9
w. The way we do things in this company is well-suited to the business we are in.	3.9	4.1	3.9
i. This company has a characteristic "management style."	3.8	3.8	3.8
j. Decisions are usually made where the most accurate information is available.	3.8	3.9	3.8
b. Strategy is primarily provided by the president.	3.7	4.0	3.5
r. People with unpopular views are given a fair hearing.	3.7	3.8	3.7
u. People are encouraged to experiment in this company.	3.7	3.6	3.6
v. Long-term potential is valued over short-term performance.	3.7	3.7	3.7
e. We spend as much time as possible with customers and other key stakeholders.	3.6	3.6	3.6
m. Most people in this organization are treated pretty much the same.	3.6	3.8	3.5
k. Most people in this company have input into the decisions that affect them.	3.5	3.5	3.5
p. Specific work roles and expectations are clearly defined in this company.	3.5	3.6	3.6
d Business planning in our company is ongoing.	3.4	3.4	3.5
f. Our business and product planning process involves customers, suppliers, and funders.	3.4	3.3	3.3
n. People here are very dynamic and entrepreneurial.	3.3	3.4	3.3
g. Business and product planning in this company is largely an internal process.	3.2	3.1	3.2
x. Decisions concerning business strategy are made on a consensus basis.	3.2	3.1	3.2
l. Most people here are willing to take risks.	3.1	3.1	3.1
y. The chief executive insists on placing his/her mark on virtually every major initiative.	3.0	3.3	3.0
a. There is a clear blueprint for this company's strategy.	2.9	3.1	2.9
t. Failure is something to be avoided at all cost.	2.8	3.0	2.8
o. Conflict in this organization is often suppressed rather than dealt with openly.	2.4	2.4	2.4

4. Our company continually adapts based upon feedback from the marketplace;
5. The way we do things is well suited to the business we are in;
6. This company has a characteristic "management style"; and
7. Decisions are usually made where the most accurate information is available.

Thus, County firms seem to emphasize the importance of cooperation, team work, consistent values, and an distinctive management style. The results of the factor analysis of these items, presented in Table 4.8, provides another perspective on the same results. Seven factors emerged from the analysis and an eighth individual item was retained for its expected importance. Building upon the above analysis, *Participative Culture* appears to be the most strongly emphasized dimension. Oakland County firms also tend to emphasize *Executive Vision*, a *Long-Term Orientation*, *Shared Vision*, and *Adaptiveness* in the management of their operations.

While it is interesting to gain an understanding of the relative emphasis placed upon different management variables by County firms as a whole, the real payoff comes in analyzing the differences between firm types. Such analysis is not, however, included in this volume, but will be presented in future publications.

Employment Outlook

The employment outlook is always an important element in economic development planning, but particularly so when an area is in such a state of transition and growing as rapidly as is Oakland County. Being able to forecast accurately the emerging level and mix of employment and identify the new growth sectors is an important strategic capability. This can enable planners to ease the impact felt by declining sectors and firms and facilitate growth, training, and development in emerging businesses.

Section six in the instrument dealt with the employment outlook in Oakland County. It requested respondents to indicate the average number of full-time equivalent employees with their firm in six different job categories for 1985, and to provide estimates of the same for 1986 and 1987. Table 4.9 contains the results for this section.

Table 4.8. **Organization and Management Indexes**

Dimension/Index	N	Mean	Items Included
Participative Culture	665	4.0	– Cooperation and collaboration encouraged: company is like a team; common management style; well-suited to the business; clear and consistent values; decisions made at appropriate levels.
Shared Vision	596	3.5	– Business strategy made on a consensus basis; people have input to important decisions.
Executive Vision	601	3.7	– Strategy provided by the President and direct reports.
Strategic Adaptiveness	590	3.6	– Involve customers, suppliers and funders in planning process; listen to customers and other stakeholders; adapt strategy based upon market feedback.
Strategic Clarity*	599	2.9	– Clear blueprint for strategy that was set some time ago and has changed little.
Entrepreneurial Spirit	594	3.4	– People are dynamic and entrepreneurial; willing to take risks.
Risk Aversion	597	2.8	– Failure is something to be avoided at all costs.
Long Term Orientation	597	3.7	– Long-term potential valued over short-term performance.

*Single item index

As Table 4.9 shows, the areas of strongest growth in 1985-1986 were technical staff, followed by laborers and service workers. The slowest growth occurred among professional staff. *Growth in the total number of jobs in the County in 1986 was 10.7%. For 1987, job growth is projected to be somewhat slower, with an overall rate of 9.3%.* Growth rates will increase slightly among service workers and skilled craftspeople, but will be slower in all other job categories. The rate of growth of jobs in technical staff areas is still the highest of all job categories (15.0%), but the rate of growth has declined somewhat from last year.

Table 4.9. Employment Growth by Job Category

Job Category	Percent Employment Growth 1985-1986	Percent Employment Growth 1986-1987	Percentage of 1985 County Jobs in Category
Executives/ administrators/ supervisors	9.6	8.3	5.8
Professional staff (e.g., (accountants, lawyers)	8.5	8.1	9.6
Technical staff (e.g., (engineers, researchers)	19.9	15.0	6.6
Sales, clerical, and service workers	11.6	12.2	21.6
Skilled craftspersons and machine operators	9.4	10.9	16.6
Laborers, others	11.9	7.0	39.8
Total Sample	10.7	9.3	100%

The greatest decline from last year's growth rate, and the lowest projected rate of overall growth for 1987 is among laborers. Last year's above average growth rate (11.9) has dropped to a level that is now lower-than-average among all job categories (7.0).

The third column in Table 4.9 presents the proportion of total County employment accounted for by each of the various job categories in 1985. This estimate provides a basis for projecting total employment gains in each of these categories.

The overall projections for total employment growth follow a similar pattern to the econometric projections developed by Grimes and Fulton (1987). Their projections were for 5.4% growth in total employment in 1986 and 3.7% growth in total employment for 1987, indicating that growth would be slower in 1987. These results follow the same general pattern as the results in Table 4.9, but are generally lower rates. This difference can most likely be attributed to the fact that this study *oversampled* high growth firms, and made projection based upon the sample. Firm-weighted projections of employment growth by job type as well as other categories are now being refined and will be reported on a later date. These projections augment an earlier set of analyses of employment trends revealed by the MESC data. These analyses are presented in Appendix E.

Responses to three open-ended questions concerning employment outlook provide further insight. Question F4 asked about what types of training or retraining needs were foreseen in the next few years. By far, the most frequent response was computer training, particularly in the area of Computer-Aided Design (CAD) (42 mentions). Other frequently mentioned training needs included sales training (25), general technical training (23), management training (18), and general continuing education (15).

Question F6 in the instrument asked respondents to list particular skills that they had difficulty finding in the recent past. Again, computer skills, particularly in the CAD/CAM area were the most frequently mentioned (24). Other key skill needs included manufacturing skills (20), general technical skills (20), engineering skills (16), sales and marketing skills (13), clerical skills (11), and management skills (10).

A related question in the survey (Q.F7) asked respondents if they were currently unable to fill certain jobs. Here the most frequently mentioned jobs included skilled labor (12), clerical (11), and general technical jobs (8). It seems that area firms have difficulty filling the relatively less desireable clerical and skilled labor jobs, while their greatest needs in terms of skill development, training and retraining are in the area of computers, particularly CAD/CAM.

Economic Outlook

Another one of the goals of the Oakland County Business Survey was to create a set of overall indicators of businesses' outlook about the County and its economic future. Table 4.10 contains selected univariate results for a number of the questions designed for this purpose.

Questions G 1-5 measured expectations for investment and expansion in the coming year. The results indicate that Oakland County businesses expect to make moderate investments in new equipment in the next year, with some planning to expand at their present site or within the County. Little investment in facilities or expansion appears to be planned for outside of the County or state. Responses to Q.G 11 indicate that *virtually none of the firms reported that they were planning to*

Table 4.10. Results for Economic Outlook

1	2	3	4	5
No Investments	Minor Investments	Moderate Investments	Significant Investments	Major Investments

Item	Unweighted Mean	Firm Weighted Mean	Employment Weighted Mean
G 1. Do you plan to make investments in new equipment next year?	2.6	2.4	2.7
G 2. Do you plan to expand facilities at or near your present site within the next year?	1.9	1.7	2.0
G 3. Do you plan to expand facilities in Oakland County within the next year?	1.8	1.7	2.0
G 5. Do you plan to expand facilities outside of Michigan within the next year?	1.4	1.1	1.5
G 4. Do you plan to expand facilities in Michigan, outside of Oakland County, within the next year?	1.3	1.2	1.6

1	2	3	4	5
No Possibility	Slight Possibility	Some Possibility	Strong Possibility	Almost Certain

Item	Unweighted Mean	Firm Weighted Mean	Employment Weighted Mean
G10. Will your firm be involved in a merger, acquisition, or buyout during this coming year?	1.7	1.4	1.8
G13. Is your firm likely to establish an ESOP plan this coming year?	1.3	1.2	1.2
G 9. Will your firm use public stock offerings as a method of financing during the coming year?	1.2	1.0	1.3
G11. Does your firm plan to leave Oakland County this year?	1.1	1.1	1.1

1	2	3	4	5
Poor	Fair	Good	Very Good	Excellent

Item	Unweighted Mean	Firm Weighted Mean	Employment Weighted Mean
G20. What is the overall economic outlook for Oakland County for the next five years?	3.2	3.2	3.3
G19. What is the overall economic outlook for Oakland County for the next 12 months?	3.1	3.2	3.2
G18. What is the overall economic outlook for your business for the next five years?	3.1	3.1	3.2
G17. What is the overall economic outlook for your business for the next 12 months?	3.0	3.1	3.0

leave the County next year. Finally, Q.G 17-20 provide an interesting indication of firms' perception of the long-term outlook for the County. The results suggest that businesses are generally optimistic about the future. Indeed, their assessments of the overall outlook for the County over the next five years are somewhat higher than their outlook for the business over the next year.

Index construction for items in this section yielded a number of additional insights about the Economic Outlook for the County (for this section, indexes were created based on conceptual criteria rather than through factor analysis.) Table 4.11 contains the number of respondents, means and items included from the survey for each of the indexes created. As noted above, *area firms show a moderately strong tendency to invest or expand in Oakland County next year while showing little proclivity to invest or expand outside of the County.* Markets for products and services are perceived as growing only marginally next year (mean = 2.6) -- this may explain, to some degree, the results regarding employment outlook discussed in the previous section. Still, firms appear to be quite optimistic about their prospects for the coming year and also see the outlook for the County as being good over the long term.

The last item in Table 4.11 is a composite *Economic Outlook Index* (EOI) for the County comprised of all of the items in the prior indexes save those associated with investment or expansion outside of the County. The ten items in this index yield a range of possible scores from 5 - 50. Multiplying the score by two results in a range for the EOI of 10 - 100. The 58.4 score on the index provides an important benchmark for future comparison. Indeed, it should be interesting to track these results over time and compare them to other outlook questions such as those discussed above. Later chapters also examine the economic outlook for different sizes and types of firms. This more targeted analysis should provide useful input to policy and program formulation.

Summary

Overall perceptions regarding location factors, operating problems, the use of business services, and employment and economic outlook present a positive picture: firms see the County as a good place to locate because of its proximity to markets, customers, and their residences, and also because of the commerical space, and overall health and quality of the region. The primary operating problems for County firms are perceived to be health insurance, anticipating the future, domestic competition, and the overall state of the economy. The use of business services is generally low, with printing and mailing and legal services receiving the most attention.

Table 4.11. Economic Outlook Indexes

Dimension/Index	N	Mean	Items Included
Invest/Expand in Oakland Co.	598	2.9	– Invest in new equipment next year; expand present facilities next year; expand within County next year; leave County (scale reversed).
Invest/Expand Outside Oakland Co.	598	1.4	– Expand facilities outside of County next year; expand facilities outside of State next year.
Market Growth	596	2.6	– Primary markets will grow next year; introduce new products/services next year.
Firm Prospects	605	3.7	– Overall economic outlook for business next year; business faces major problems next year (scale reversed).
Oakland Co. Prospects	593	3.3	– Overall economic outlook for County next year; overall outlook for next five years
Economic Outlook Index (EOI) (Scale 10–100)	567	58.4	– All items above except those for Invest/ Expand Outside.

Employment growth for the firms in this sample in 1987 is projected to be 9.3%, a slight decline from the 1986 rate. The greatest areas of job growth should be in technical staff and service workers, and the area of slowest growth in 1987 should be in unskilled labor. Most firms project a favorable economic outlook for their own firms and for the region, and a moderate-to-strong tendency to invest and expand in the County.

This overall presentation of the perceptions of County firms has provided the general background necessary for Chapter Five -- a discussion of the way that these perceptions vary for different types of firms in the County.

CHAPTER FIVE: ANALYZING PERCEPTIONS BY FIRM TYPE

The two preceeding chapters have presented overall results with regard to firm characteristics (Chapter 3) and firm perceptions (Chapter 4). In this chapter, the relationship between firm characteristics and perceptions is explored. More specifically, perceptions about location factors, operating problems, the use of business services, and employment/economic outlook are analyzed to discover where significant differences exist between different types of firms. Such analyses are essential if economic development policies are adequately to target the needs and problems of particular kinds of firms.

Significant differences in perceptions are presented first by industrial sector; then by level of technology, stage of development, firm size and origin, foreign exporting, firm age, growth, and location, and finally, firm performance. The statistical test used to determine the significant differences in perceptions among firm types is Analysis of Variance (ANOVA). These analyses rely upon the sets of indexes described in Chapter Four (highlighted in italics when mentioned in the text). A more detailed description of ANOVA can be found below.

Each section in this chapter includes one or two summary tables. These tables highlight the results for each section by contrasting the most and least important issues for each type of firm.

Industrial Sector

This section expands on the earlier discussion of industrial sector by examining the specific perceptions of retail, wholesale, manufacturing, finance and insurance, business service, and other service (i.e., personal service) firms. The results highlight the ways in which the firms in each particular sector stand out from the others in their perceptions about the County and their businesses. Summary tables are presented in this section (Tables 5.1 and 5.2), and the detailed results are presented in full in Appendix Tables F.1 - F.4.

Retail firms have a relatively small number of factors that distinguish them from firms in other sectors. The major significant differences with regard to locational factors seem to be their emphasis on *Proximity to Markets* and their relative lack of concern with *Housing* and *Input Availability*. In the area of operating problems, retail firms anticipate fewer *Production and Technology* and *State of Economy* problems than firms in most other sectors, and are less likely to see the formulation of *Competitive Strategy* as a key operating problem. Retail firms are not major users of business services, and report lower use of *Management Consulting, Computing, Employment, Training and Outplacement,* and *Legal Services* than most other firms.

Retail firms as a whole have a favorable outlook for the County economy. Although they are only average in their intent to make new investments or expand within the County, they are highest of all the sectors in their intentions to expand outside of the County. This fits with their perception that the outlook for their existing markets is average over the next few years, while the outlook for their own firm is very good.

Wholesale firms more closely resemble the County population as a whole, with a few notable exceptions. Like retail firms, they are less concerned about *Housing* as a factor in locational decisions than firms in the other sectors. Wholesale firms are also much more influenced by the *State of the Economy* than most other firms, and are the second highest among the six sectors in their intended use of *Computer Services*. Wholesale firms are among the highest of all sectors in their intent to invest and expand in 1987, both within Oakland County, and outside of the County. These firms also reported the greatest employment gains for 1985-1986, and project the second greatest gains for 1987, second only to the Business Services sector. This is interesting since they see the prospects for *Market Growth* and *Firm Prospects* to be about average, and see the *Economic Outlook* for the County as a whole as being second lowest to other sectors.

Manufacturing firms differ from the other sectors in a number of important ways. In comparison to other firms, manufacturing firms report a different set of factors that drive their locational decisions. They are more concerned about *Input Availability* for their businesses -- suppliers, labor, technical support, and so on -- than other sectors. Also of concern were *State Taxes*; these were seen as more of a disincentive to locating in the area than for any of the other sectors. Of less concern, compared to other sectors were such factors as *Overall Quality* of the area and *Proximity to Market*. Conspicuously absent is an emphasis on the more traditional criteria associated with the *Business Climate* index. It seems that the location criteria of even some of the manufacturing sector has shifted away from the traditional "smokestack" criteria -- taxes, utility costs, and wage rates -- to those associated with human capital and supplier access.

Table 5.1. Summary of Perceptions of Firms by Industrial Sector

Most Important...	Retail	Wholesale	Manufacturing	Finance & Insurance	Business Services	Other Services
Location Factors as Incentives:	Market Proximity		Input Availability	Overall Quality State Taxes Housing		State Taxes Market Proximity
Expected Operating Problems:		Competitive Strategy	Production & Technology Insurance & Regulatory Costs International Competition State of Economy			Money
Anticipated Use of Business Services:			Technical	Employment Printing & Mailing Legal Computing		Management Consulting Training & Outplacement
Aspects of Future Economic Outlook:	Outside Oakland Co. Investment/Expansion	Outside Oakland Co. Investment/Expansion		Market Growth Firm Prospects Economic Outlook		Oakland Co. Prospects

Table 5.2. Summary of Perceptions of Firms by Industrial Sector

Least Important....	Retail	Wholesale	Manufacturing	Finance & Insurance	Business Services	Other Services
Location Factors as Incentives:	Housing Input Availability		Overall Quality Market Proximity			
Expected Operating Problems:	Competitive Strategy Production & Technology State of Economy			Money International Competition	Insurance & Regulatory Costs	
Anticipated Use of Business Services:	Management Consulting Employment Training & Outplacement Legal Computing		Printing & Mailing	Technical		
Aspects of Future Economic Outlook:			Firm Prospects Oakland Co. Prospects Economic Outlook			Outside Oakland Co. Investment Expansion Market Growth

Along with wholesale firms, manufacturing firms also perceive that they are most directly affected by the general *State of the Economy*. Not surprisingly, manufacturing firms also report a different set of operating problems than firms in other sectors: they are most attuned to *International Competition*, and are most likely to cite *Production and Technology* problems, or *Insurance and Regulatory Costs* as the most significant issues in their operation. Manufacturing firms are also the most likely to use outside *Technical Services*.

Manufacturers have a significantly less favorable economic outlook than do the other sectors. They are among the lowest of all sectors in their intent to invest or expand within Oakland County this year, and are among the lowest in intent to expand outside of the County. They see the prospects for their individual firms less optimistically than do firms from other sectors, and see the prospects for the County as a whole as being less favorable. Manufacturing firms are lowest on the overall *Economic Outlook Index*, and reported the lowest employment growth in 1986.

Finance and Insurance firms also display some unique features. This sector tends to place greater emphasis on the *Overall Quality* of the area, *State Taxes* and *Housing* opportunities than do the other sectors. This sector also anticipates fewer *Money* problems than do other types of firms. They forecast the greatest usage of many external business services including *Employment, Printing and Mailing, Computing* and *Legal Services*, and the lowest use of *Technical Services*.

The economic outlook for finance and insurance firms is the highest of all sectors. Although they are only average in their intent to invest or expand in the County this year, firms in this sector are among the lowest in their intent to expand outside of the County. Finance and insurance firms project a high rate of *Market Growth* and favorable prospects for their own individual firms. Finally, this sector reported the highest employment growth of all sectors for 1985-1986. Thus, it would appear that the finance and insurance sector is a strong performer in the County portfolio. Not only is the economic outlook for this sector strong, it is also heavily committed to doing business and residing in the Oakland County area.

Business Service firms stand out on only a few dimensions. Their only distinct preference among locational factors is a stronger emphasis on *Housing* than other types of firms. Business service firms also tend to view *State Taxes* as a minor disincentive to locating in the County, second only to manufacturing firms. These firms have only two relatively distinct operating problems -- they anticipate *Money* to be somewhat of a problem in the coming year and see *Insurance and Regulatory costs* as being less of a problem than all other sectors. *Printing and*

Mailing Services are the only type of services for which business service firms report greater-than-average usage.

The economic outlook for business service firms is highly favorable. As with the finance and insurance sector, they are average in their intent to invest or expand inside of the County, and are less inclined to expand outside of the County. They project high growth within their basic markets, and average or slightly better prospects for their own individual firms. These firms reported the highest actual employment growth for 1986, and project the highest rate of growth for 1987.

The final sector, **Other Services,** presents a mixed picture. Like the retail sector, one of their most significant concerns in locational decisions is *Proximity to Markets*. Other service firms are unique, like the finance and insurance sector, in their favorable view of *State Taxes* as a location incentive.

As a group, other service firms present only one distinctive operating problem: they have the highest level of anticipated *Money* problems. This sector is also quite high in its expected use of business services relative to most other sectors (except finance and insurance), particularly *Management Consulting, Training and Outplacement, Employment,* and *Printing and Mailing Services.*

These other service firms, as a group, appear to be the most committed to Oakland County, scoring highest in their intent to invest or expand within the County and the lowest in their intent to expand outside of the County. They project low growth for their market as a whole, but see the prospects for their individual firms as being second highest to other sectors of the economy. They see the long-term prospects for the County as being more favorable than firms from the other sectors, but reported lower employment growth than most other sectors for 1986.

Perhaps the best overall indication of the varying economic outlook associated with these sectors comes from their actual and projected employment growth. Table 5.3 presents these results by Industrial Sector. As the data show, growth is strongest in the wholesale and business services sectors, although even these areas of strength project slower growth for 1987. Retail and finance and insurance sectors report relatively high growth for 1986, but project lower growth for 1987, while manufacturing shows the opposite trend. The other services sector shows a lower rate of growth, but one that is stable across both years.

Summary Tables 5.1 and 5.2 allow the most distinctive perceptions of each sector to be contrasted with each other. Table 5.1 lists the perceptions that are significantly higher than average for each sector, while Table 5.2 lists the perceptions that are significantly lower than average. Again, the statistical test used to determine the significant highs and lows, both in these tables and in the chapter as a whole, is analysis of variance (ANOVA).

Table 5.3. **Industry Sector and Employment Growth**

Sector	1985-86 (percent growth)	1986-87 (Est.) (percent growth)
Retail	9.5%	4.1%
Wholesale	23.9	11.3
Manufacturing	4.0	9.2
Finance/Insurance	10.5	6.2
Business Services	19.3	17.4
Other Services	5.4	5.3
Overall	10.7	9.3

ANOVA determines the probability that the difference between two categories -- for example, the difference in economic outlook between the manufacturing and the business service sectors -- could have occurred by chance alone. Results highly *unlikely* to have occurred by chance (i.e., less than 10% probability -- p<.10) are highlighted in these summary tables.

Level of Technology

Understanding the differing perceptions and needs of firms with different levels of technological sophistication is critically important from the perspective of economic development -- as important as understanding the differences between industrial sectors. In Oakland County, there are significant differences in perceptions about location factors, operating problems, business service needs, and economic outlook associated with varying levels of technology. This section describes those differences in general terms, and capsulizes them with summary tables 5.4 and 5.5, highlighting the significant results for each level of technology. The detailed results for this section can be found in Appendix Tables F.5 - F.8.

Overall, the data indicate that **high-technology firms** have significantly different location criteria than firms that place less emphasis on technology. High technology firms appear to emphasize the *Overall Quality* of the region in their decisions to locate or expand in the County. Interestingly, low technology firms also emphasize this criterion, while intermediate level firms seem less concerned about the *Overall Quality* of the area. Since most high technology firms are homegrown, it makes sense that they, like their low technology neighbors, who are also predominantly homegrown, would emphasize the importance of the immediate area. Other location criteria, such as *State Taxes* -- unemployment compensation, the single business tax, and workers' compensation -- appear to be largely neutral for high technology firms. Curiously, medium-high technology firms have a more favorable perception of *State Taxes* than the medium-low technology firms that see them as a minor disincentive.

High technology firms are clearly the least concerned about the cost or availability of *Commercial Space*. Given the knowledge intensity and generally high margin-to-weight of most high technology products this finding is readily understandable. However, high technology firms are very concerned about the area's *Input Availability* -- suppliers, technical and production personnel -- significantly more so than low technology firms. Finally, with regard to individual survey items, high technology firms have a distinct preference for areas with *Access to a University or College, Corporate Laboratory,* and *Educational Programs.* Again, given such firms' "knowledge intensity," this result should come as no surprise. What begins to emerge is a picture of the "technological infrastructure" needed to incubate and foster such firms. What is clear is that the locational preferences for high technology firms are dramatically different from those of the heavy industrial facilities of the past.

The results for operating problems are less clear-cut. Indeed, significant differences appear only on two of the nine indexes by level of technology and these seem to be problems unique to the medium-level technology firms. Middle-level technology firms expect that *Production and Technology* -- production processes and R&D capability -- will be more of a problem in the coming year than either the high or low technology firms. With regard to *International Competition*, low technology firms are clearly the least concerned about this problem. Higher technology firms are more concerned about the issue of *International Competition*, although the medium-high firms see it as even more important. Higher technology firms also appear to be less concerned about such issues as internal controls, management information systems, and efficiency. Thus, the most significant

Table 5.4. Summary of Perceptions of Firms by Level of Technology

Most Important...	Low	Medium-Low	Medium-High	High
Location Factors as Incentives:	Overall Quality Commercial Space	Input Availability	State Taxes	Overall Quality Input Availability
Expected Operating Problems:		Production & Technology	Production & Technology International Competition	International Competition
Anticipated Use of Business Services:			Training & Outplacement	Management Consulting Employment Printing & Mailing Technical
Aspects of Future Economic Outlook:				Market Growth Economic Outlook

Table 5.5. Summary of Perceptions of Firms by Level of Technology

Least Important....	Low	Medium-Low	Medium-High	High
Location Factors as Incentives:	Input Availability	Overall Quality State Taxes		Commercial Space
Expected Operating Problems:	Production & Technology International Competition			
Anticipated Use of Business Services:	Management Consulting Employment Training & Outplacement Printing & Mailing Technical			
Aspects of Future Economic Outlook:	Market Growth Economic Outlook			

operating problems for medium to high technology firms seem to revolve around the issues of R&D capability and international competition. Results for the individual survey items indicate the lower technology firms expect to have the greatest difficulty identifying new market opportunities and developing new products.

Firms of different levels of technology also differ in their anticipated use of business services. High technology firms expect to make somewhat greater use (although still only a small absolute amount) of *Management Consulting* and *Employment Services*. High technology firms also forecast the greatest need for *Printing and Mailing* and *Technical Services*. In contrast, medium-high technology firms project the greatest need for *Training and Outplacement Services*. In general, it appears that anticipated need for business services is greater across the board for firms at higher levels of technology.

Finally, despite the fact that employment outlook does not appear to vary by level of technology, the economic outlook for firms at varying levels of technology is significantly different on two important dimensions. First, the higher technology firms anticipate much higher *Market Growth* in terms of both market expansion and new product introduction in the coming year. Individual survey items also indicate that they anticipate increasing price pressure in the coming year, indicating an increasingly competitive environment. Associated with this is the high technology firms' more positive overall *Economic Outlook*. Interestingly, low technology firms have the lowest economic outlook. Thus, it appears that the highest and lowest technology firms have an outlook on the economy that parallels their level of technology.

Stage of Development

As noted in Chapter Three, the portfolio of firms in the County is broadly distributed across five stages of development: Start-up, Accelerated Growth, Steady Growth, Stable, and Declining. This section further examines these differences by looking at the perceptions of firms across these five stages. Perceptions of firms at these five stages are compared to highlight differences in locational factors, operating problems, the use of business services, and economic outlook and employment growth. The detailed results for this section are presented in full in Appendix Tables F.9 - F.12. Text tables 5.7 and 5.8 serve to summarize the key differences.

Start-up firms are distinct from more mature firms in several important ways. Surprisingly, they look much like the County firms as a whole when it comes to locational factors -- no distinct locational preferences stand out for these firms except the perception of *Input Availability* as a minor disincentive. However, start-up firms (not surprisingly) are more concerned than mature firms about *Money* problems. *Insurance and Regulatory Costs* present less of a problem to start-up firms than to firms at other stages of development. Start-ups firms also appear to use distinct patterns of business services, concentrating on *Technical* and *Marketing Services*.

The economic outlook for start-up firms, as one might expect, is mixed. Start-ups report the highest expected *Market Growth* as well as the highest proportional growth in employment for 1985-1986 and the highest expected rate of employment growth for 1987 (see Table 5.6). Their level of anticipated investment and expansion falls somewhere in the middle compared to firms at more advanced stages, and their overall *Economic Outlook* is average at best. Start-up firms are, however, highly committed to the immediate area, in that they are the least likely to expand outside of the County.

Table 5.6. Stage of Development and Employment Growth

Stage	1985-86 (percent growth)	1986-87 (Est.) (percent growth)
Start-Up	16.1%	22.6%
Accelerated Growth	20.2	19.7
Steady Growth	11.3	9.3
Stable	9.0	7.3
Declining	-0.8	-2.9
Overall	10.7	9.3

Firms that have entered the stage of **accelerated growth** show a very different profile from start-up firms. When considering locational factors, these firms have one primary concern: the inputs necessary to continue fueling their

Table 5.7. Summary of Perceptions of Firms by Stage of Development

Most Important...	Start-Up	Accelerated Growth	Steady Growth	Stable	Declining
Location Factors:		Input Availability	Market Proximity		Input Availability
Expected Operating Problems:	Money				Competitive Strategy Strategic Planning Product. & Technol. Insurance & Regulatory Costs Internat'l Competition State of Economy
Anticipated Use of Business Services:	Technical Marketing	Printing & Mailing Marketing Computing			Technical
Aspects of Future Economic Outlook:	Market Growth	Oakland Co. Investment/Expansion Outside Oakland Co. Investment/Expansion Firm Prospects Oakland Co. Prospects Economic Outlook			

Table 5.8. Summary of Perceptions of Firms by Stage of Development

Least Important....	Start-Up	Accelerated Growth	Steady Growth	Stable	Declining
Location Factors:	Input Availability		Input Availability		
Expected Operating Problems:	Insurance & Regulatory Costs	Competitive Strategy Production & Technology International Competition State of Economy	Strategic Planning Money		
Anticipated Use of Business Services:			Technical	Printing & Mailing Marketing	Marketing Computing
Aspects of Future Economic Outlook:	Outside Oakland Co. Investment/Expansion			Outside Oakland Co. Investment/Expansion	Oakland Co. Investment/Expansion Market Growth Firm Prospects Oakland Co. Prospects Economic Outlook

accelerating growth. Whereas declining firms are quite concerned about *Competitive Strategy*, accelerated growth firms are least concerned with issues of strategy. Except for the lower concern for *Production and Technology, International Competition*, and the *State of the Economy*, other operating problems appear to be about average for these firms. Regarding services, accelerated growth companies stand out from other firms in their frequent use of *Printing and Mailing, Marketing*, and *Computing Services*. Thus, accelerated growth firms are voracious users of local resources, depending heavily upon business services and local suppliers to maintain their growth.

As might be expected, accelerated growth firms have the most favorable economic outlook. They show the greatest propensity to invest or expand within the county, and are also the most likely to invest outside of the County. And while their *Market Growth* is expected to be slightly lower than that of new start-ups, accelerated growth firms report both the best prospects for their individual firms, and the best prospects for the County as a whole. The rate of employment growth for these firms in both 1985 and 1986 is also higher than any other group besides the start-up firms. Finally, the *Economic Outlook Index* is highest for this group of accelerated growth firms.

Steady growth firms in the County have several distinguishing characteristics. In location decisions, they place higher emphasis than other firms on *Proximity to Markets* and lower emphasis on *Input Availability*. They have few operating problems, and see *Strategic Planning* and *Money* as less of a problem than other firms. In addition, they are less likely to use *Technical Services* than firms at other stages of development.

The *Economic Outlook* for steady growth firms is generally optimistic: next to the accelerated growth firms, they report the highest prospects for their individual firms. While they expect only average *Market Growth*, they are about the same as the accelerated growers on the overall *Economic Outlook Index*. In most other perceptions of locational factors, operating problems, and the use of business services, steady growth firms look very similar to the "average" firm in the County.

Stable firms show the fewest distinguishing characteristics of any of the stages. They show no distinctive patterns of locational factors, operating problems, or business service usage, other than a lower emphasis on *Printing and Mailing* and *Marketing Services*. Only one characteristic regarding economic outlook, a lower intention to invest or expand outside of the County, distinguishes these firms from the County firms as a whole.

Declining firms have a pattern of problems and needs that quickly distinguishes them from the other stages of development. With regard to locational factors, declining firms tend to be most concerned (followed by accelerated growth firms, curiously enough) with *Input Availability* -- suppliers, labor, and support services. As might be expected, they anticipate the most difficulty with every operating problem, but are most concerned about the *State of the Economy, Competitive Strategy*, and *Insurance and Regulatory Costs*. They stand out from firms at other stages of development in both the number and the intensity of operating problems that they report. Declining firms also expect to make significant use of *Technical Services* and minimal use of *Marketing* and *Computing Services*.

Declining firms, as might be expected, also have a distinctly unfavorable economic outlook. They are unlikely to invest or expand in the County, and projected growth in their basic markets is lowest of all the stages. Perhaps most revealing, declining firms report that the prospects for their individual firms are by far the worst of any of the stage categories.

Firm Size

This section compares the responses from the five different employment size categories reported earlier by grouping them into small (<25), medium (26-500), and large (>500) firms. The results are reported here for locational factors, operating problems, business services, and economic outlook. Complete results for this section are presented in Appendix Tables F.13 - F.16. Important findings are summarized in Table 5.9.

Small firms have several characteristics that distinguish them from larger firms: They stress the importance of the *Sociotechnical Infrastructure* less than larger firms do, and stress *Proximity to Residence* more as an important locational factor. Since most small firms are homegrown, the importance of *Proximity to Residence* is an understandable and significant locational concern. Very small firms with less than five employees are less concerned with *International Competition*, than are either medium-sized or larger firms. Small firms also tend to make less extensive use of business services compared to larger firms. The only exception to this is in regard to *Printing and Mailing* where firms of all sizes make similar use of the service.

The economic outlook for small firms is generally less optimistic than that for larger firms. Small firms project less investment or expansion inside or outside the

Table 5.9. Summary of Perceptions of Small, Medium, and Large Firms

Most Important	<25 Small	25-500 Medium	>500 Large
Location Factors as Incentives:	Residential Proximity	Market Proximity	Sociotechnical Infrastructure
Expected Operating Problems:			People Operations Management Production & Technology Insurance & Regulatory Costs
Anticipated Use of Business: Services:		Employment	Training & Outplacement Technical Marketing Computing
Aspects of Future Economic Outlook:			Oakland Co. Invest/Expansion Outside Oakland Invest/Expansion

Least Important	<25 Small	25-500 Medium	>500 Large
Location Factors as Incentives:	Sociotechnical Infrastructure		
Expected Operating Problems:	People Insurance & Regulatory Costs International Competition		
Anticipated Use of Business Services:	Management Consulting Employment Legal Technical Marketing Computing		
Aspects of Future Economic Outlook:	Oakland Co. Invest/Expansion Outside Oakland Invest/Expansion		

County than do larger firms but at the same time are relatively positive about their own *Firm Prospects*. Small firms reported, on average, the highest rate of employment growth for 1986 (12-15%) and projected only a slightly lower growth for 1987 (see Table 5.10).

Table 5.10. Size and Employment Growth

Size	1985-86 (percent growth)	1986-87 (Est.) (percent growth)
1-5	15.4%	12.9%
6-25	12.3	10.9
26-100	5.4	8.1
101-500	5.1	3.0
500+	6.0	2.2
Overall	10.7	9.3

There are many fewer characteristics that distinguish **medium-sized firms** from the sample as a whole. In contrast to small firms' concern with *Proximity to Residence*, mid-sized firms appear to be most concerned with *Proximity to Markets* in making location or expansion decisions. No particular operating problems appear to distinguish these mid-sized firms from larger and smaller firms. Mid-sized firms do, however, seem to anticipate greater usage of *Employment Services*.

Analyzing the economic outlook for these firms shows a fairly upbeat picture. Medium-sized firms anticipate significant investment and expansion in the coming year (though not as great as the large firms). Medium-sized firms as a group are also solid performers in terms of employment growth (see Table 5.10). They reported roughly a 5% growth in employment for 1986, and project a somewhat lower rate for 1987, although the 26-100 employee size bracket projects a higher rate of employment growth in 1987. The data thus tend to confirm the idea that the medium-sized firms are the backbone of the local economy, showing neither the employment gains of the small firms nor the steep declines in growth of the large firms.

The **large firms** in our sample present a substantially different profile than either the small or medium-sized firms. Large firms are significantly more concerned about *Sociotechnical Infrastructure* as a key location criteria than either small or medium sized firms. The key operating problems for these firms include problems in the areas of *People, Operations Management, Production and Technology,* and *Insurance and Regulatory Costs.* Finally, larger firms have a distinctive pattern of business service use; they anticipate using the most of any of the size categories of *Training and Outplacement, Technical, Marketing,* and *Computing Services.*

Large firms also have a different profile on the economic outlook indicators. They have more plans to invest inside the County than smaller firms, and much greater projections for investing or expanding outside of the County. They project relatively high *Market Growth* and, along with small firms, generally see the prospects for their individual firms and for the County as a whole as being very good. Overall, the *Economic Outlook Index* is slightly higher for large firms than for either the small or medium-sized firms. Large firms reported approximately 5% employment growth for 1986 but project only 2.2% growth in employment for 1987, making this the slowest growing of all the size categories in terms of jobs (Table 5.10).

Firm Origin

As noted in Chapter Three, over 90% of all new firms created in Oakland County over the past seven years were formed by founders with roots in the County. Understanding the particular business problems and needs of these "homegrown" firms is therefore of critical importance from an economic development perspective. Their perceptions regarding the five areas discussed in previous sections are presented here. The detailed results for homegrown firms can be found in Appendix Tables F.17 - F.20. Table 5.11 presents a summary of the significant results for each category of firm origin.

With regard to location factors, **homegrown firms** do not differ significantly from other firms with a couple of important exceptions. First and foremost, there is a clear tendency for homegrown firms to place much greater importance on *Proximity to Residence* than other firms. While this may seem both trivial and self-evident, its importance should not be undersold: executives associated with a significant amount of the County's new economic activity live in the area and value proximity to their residences. Second, both homegrown firms and firms from

Table 5.11. Summary of Perceptions by Firm Origin

Most Important	Same Area	Within S.E. Michigan	Outside S.E. Michigan
Location Factors as Incentives:	Residential Proximity		
Expected Operating Problems:	Money		International Competition
Anticipated use of Business Services:	Management Consulting Computing	Legal	
Aspects of Future Economic Outlook:			Outside Oakland Invest/Expansion Market Growth

Least Important	Same Area	Within S.E. Michigan	Outside S.E. Michigan
Location Factors, as Incentives:		Transportation	Residential Proximity
Expected Operating Problems:		International Competition	Money
Anticipated Use of Business Services:			Management Consulting Legal Computing
Aspects of Future Economic Outlook:	Outside Oakland Invest/Expansion	Market Growth	

outside the southeast Michigan area seem to emphasize *Transportation* more than those firms originating from the southeast Michigan area but outside Oakland County.

Finally, there appears to be a tendency (although not statistically significant) for firms originating from within S.E. Michigan but outside of the Oakland County area to see *State Taxes* as a minor disincentive. In contrast, however, firms originating from outside of southeastern Michigan tend to see *State Taxes* as an incentive. Apparently experience with other state tax policies provides a more realistic basis for evaluating Michigan's system.

With regard to operating problems, two factors appear to differentiate homegrown firms from others. First, homegrown firms have significantly greater *Money* problems than do firms from outside of the County -- problems with cash flow and securing financial resources. At the same time, homegrown firms do not see *International Competition* as much of a problem in the coming year, significantly less so than firms moving in from outside of the southeast Michigan area. The combination of these two factors seems to indicate that homegrown firms have a special set of problems that differ from transplanted firms. In particular, it would appear that homegrown firms may require special attention aimed at broadening their scope to include the international market and supplementing their limited funding opportunities.

Homegrown firms -- both those from the same area and from the southeast Michigan region -- anticipate greater needs for a variety of business services in the coming year. These include *Management Consulting*, *Legal*, and *Computing Services*. Interestingly, it appears that local firms anticipate the greatest need for *Computing Services* while firms from the southeast Michigan area outside of Oakland County forecast the greatest need for *Legal Services*. The higher levels of expected need of homegrown firms for *Management Consulting* -- including strategic planning, personnel management, and accounting/tax -- would seem to indicate an important opportunity for area business service providers.

Table 5.12 presents differences in employment growth for homegrown and transplanted firms. Although there is a high level of variability among respondents, the difference in the averages for each of the categories is striking. Those firms coming from the southeastern Michigan area appear to sustain the lowest level of employment growth while those relocating from outside of the region seem to fluctuate widely from year to year. Homegrown firms, however, show a stable and quite high level of employment growth from 1985-1986 and 1986-1987. Thus, it seems that homegrown firms are perhaps more stable and predictable performers in terms of employment growth. Future years of the survey will explore this facet of firm performance further to help better establish its role in economic development.

Table 5.12. Firm Origin and Employment Growth

Origin	1985-86 (percent growth)	1986-87 (Est.) (percent growth)
Same Area	12.1%	12.1%
South-East Michigan	2.2	6.8
Outside S.E. Michigan	15.6	6.7
Overall	10.7	9.3

The economic outlook associated with homegrown firms is virtually indistinguishable from that of firms originating elsewhere with one exception: homegrown firms are significantly less inclined to *Expand or Invest Outside of the County*. Thus, homegrown firms tend to stay home whereas transplanted firms tend to be more mobile. This is an important observation given that there is some evidence that homegrown firms also tend to be better performers (in terms of ROI) than firms originated elsewhere. While additional analysis is necessary to establish statistically significant relationships between firm origin and performance, the data nonetheless indicate that homegrown firms are an important source of new business activity and have a special set of problems and needs, many of which are amenable to local or state program assistance.

Exporting Firms

As mentioned previously, roughly 20% of Oakland County firms are involved in exporting to foreign markets. While this figure may initially seem quite high, there is every reason to believe that this figure should increase within the next several years as global competition and international markets become even more important. Capturing the perspective of those firms that now export abroad is useful in targeting programs that address their critical needs in the future.

The detailed results for **foreign exporters** are presented in Appendix Tables F.21-F.24; summary results can be found in Table 5.13. Several differences appear to exist with respect to the location factors important to exporters. First, it seems that non-exporting firms emphasize the importance of *Business Climate, Overall Climate* and *State Taxes* more than do exporting firms. In contrast, exporters tend to put more emphasis on the area's *Input Availability* -- suppliers and people. Convenience to good air transportation is also an important location factor for exporting firms. Thus, many of the more traditional locational criteria (e.g., costs, wage rates, taxes, etc.) appear to be important to non-exporters but are less so to those firms involved in the global market.

Table 5.13. Summary of Perceptions of Foreign Exporting Firms

	Most Important	*Least Important . . . .*
Location Incentives:		Business Climate Overall Quality State Taxes
Expected Operating Problems:	Production & Technology International Competition	
Anticipated Use of Business Services:	Technical Marketing	Printing & Mailing
Indexes of Future Economic Outlook:	Market Growth	Oakland Co. Prospects

With respect to operating problems, exporting firms are more concerned about *Production and Technology* and *International Competition* than are non-exporting firms. Indeed, the individual survey items suggest that non-exporters are more concerned with attracting capable personnel and developing management information systems. There are also important differences with respect to anticipated need for business services. Exporting firms voice a greater need for *Technical* and *Marketing Services* whereas non-exporters project greater use of *Printing and Mailing Services.*

As was the case with homegrown firms, there is also some evidence suggesting that exporting firms are more profitable than are non-exporters. Again, given the complexity involved in unraveling this relationship (separating it from industry sector, for example) additional analysis is required. What is clear, however, is that government may well facilitate the development of export markets by area firms by providing timely advice or assistance regarding foreign trade opportunities.

Identifying the firms with the best prospects for developing foreign markets is a difficult task. Such targeting might begin by profiling the product mix and economic outlook of existing foreign exporters. In general, exporting firms see overall *Market Growth* potential for their products or services as being quite strong but see the *Oakland County Prospects* as being significantly weaker than do non-exporters. Furthermore, exporting firms are relatively more likely to *Invest or Expand Outside of the County* than are non-exporting firms and hence might also be more inclined to leave Oakland County. This fact has both positive and negative implications for local economic developers; decreasing local dependency may also decrease the commitment to the area characteristic of homegrown firms. Thus, facilitating export markets is a particularly important but complex economic development challenge.

Three other firm characteristics -- firm age, rate of growth, and location -- were also analyzed but showed less by way of significant differences. The results for these three characteristics are therefore summarized briefly below. Detailed results can be found in Appendix Tables F.25 - F.28, F.29 - F.32, and F.33 - F.36.

Firm Age

New firms appear to be more internally-oriented than older firms. Indeed, location factors such as the area's *Overall Climate* and *State Taxes* are significantly less important to new firms than to old. This internal orientation is further supported by the results for operating problems which show that new firms are more concerned about *Money* and less concerned about *Insurance and Regulatory Costs* and the *State of the Economy* than are older firms. With regard to business service needs, the only observable difference for new firms is the higher expected use of *Printing and Mailing Services*. Thus, new firms appear to focus their attention inward, on the task of establishing a new market position, and less on the relative attractiveness of the area. This internal focus is further corroborated by the fact that there are no significant differences between new and old firms with regard to economic outlook except for *Market Growth*. Table 5.14 summarizes these results.

Table 5.14. Summary of Perceptions of New Firms

	Most Important....	*Least Important....*
Location Factors as Incentives:		Overall Quality State Taxes
Expected Operating Problems:	Money	Insurance & Regulatory Costs State of Economy
Anticipated Use of Business Services:	Printing & Mailing	
Aspects of Future Economic Outlook:	Market Growth	

Growth Rate

Just as the distinction between new and old firms is important, so too is an examination of firm growth rate. For Oakland County, **high growth firms** showed a few important characteristics that distinguish them from lower growth firms: They are, in general, more concerned about problems of *Production and Technology* and *International Competition*. High growth firms also tend to make more use of *Employment* and *Technical Services*. With regards to locational factors, they tend to be most concerned with *Input Availability* -- inputs of suppliers, support services, and skilled labor.

Higher growth firms also differ with respect to several of the economic outlook measures. High growth firms report that they are more likely to expand outside the County, even though they are about equal in their intentions to expand within the County. High Growth firms also perceive greater market growth than do lower growth firms. Table 5.15 summarizes these findings.

Table 5.15. Summary of Perceptions of High Growth Firms

	Most Important	*Least Important . . . .*
Location Factors as Incentives:	Input Availability	
Expected Operating Problems:	Production & Technology International Competition	
Anticipated Use of Business Services:	Employment Technical	
Aspects of Future Economic Outlook:	Outside Oakland Co. Investment/Expansion Market Growth	

Firm Location

The set of firms that have located within the **I-696 corridor** in the County have a slightly different set of concerns from the rest of the sample. Corridor firms tend to emphasize a more traditional set of location factors. They place less importance on the *Overall Quality* of the location, and more emphasis on the importance of *Business Climate, Input Availability, Commercial Space* and *Transportation*. As noted in Chapter Three, these firms also tend to be in the business services and the finance and insurance sectors. As a result, corridor firms have more concern with *Competitive Strategy, Money*, and the overall *State of the Economy*. They also tend to be somewhat less concerned with *Production and Technology* problems than do firms outside of the corridor.

Two differences exists in the use of business services by I-696 corridor firms -- those within the corridor tend to use more *Management Consulting* and *Legal Services*. Finally, the corridor firms perceive lower *Market Growth*, but otherwise have a similar economic outlook to that of firms located elsewhere in the County. Table 5.16 provides a summary of the perceptions of firms in the corridor.

Table 5.16. Summary of Perceptions of Firms in the I-696 Corridor

	Most Important	*Least Important . . . .*
Location Factors as Incentives:	Business Climate Input Availability Commercial Space Transportation	Overall Quality State Taxes
Expected Operating Problems:	Competitive Strategy Money State of Economy	Production & Technology
Anticipated Use of Business Services:	Management Consulting Legal	
Aspects of Future Economic Outlook:		Market Growth

Firm Performance

Finally, in analyzing differences in problems and needs for different firm types, a critical dimension to assess is that of firm performance. By contrasting the perceptions of high versus low performing firms, it should be possible to target economic development programs in a way that builds on strengths and improves upon weaknesses. To accomplish this, the one subjective and three objective measures of performance (ROI, Sales Growth, and Employment Growth) discussed in Chapter Four were bracketed into "highs" and "lows" using the median as the breakpoint. Analysis of Variance tests were then performed on the Location Factors, Business Service needs, Operating Problems, and Economic Outlook indexes. The results are reported in Appendix Tables F.37 - F.40 for subjective performance measures and F.41 - F.52 for the three objective performance measures. The summary tables 5.17 - 5.20 help to differentiate the needs of the high and low performing firms.

Table 5.17. Summary of Perceptions of High Subjective Performance Firms

	Most Important	*Least Important . . . .*
Expected Operating Problems:		People Competitive Strategy Strategic Planning Operations Management Money
Aspects of Future Economic Outlook:	Firm Prospects Oakland Co. Prospects	

With regard to the location factors, no differences appear for the subjective measure of overall performance, but several interesting distinctions emerge from an analysis of the objective measures. First, **high performing firms** (in terms of ROI) seem to value the *Sociotechnical Infrastructure* of the area -- access to universities and laboratories, as well as recreation, entertainment and other non-instrumental factors. They also place high value on the *Business Climate* of the County. Those firms experiencing the highest levels of sales growth appear to emphasize the *Input Availability* and *Proximity to Residence* that the County provides. High sales growth firms were also more inclined to see *State Taxes* as somewhat of a disincentive to locating in the County. This analysis shows that, once again, the traditional "smokestack" location criteria are of less importance to high performance in today's business environment.

Table 5.18. Summary of Perceptions of High Employment Growth Firms

	Most Important	*Least Important . . . .*
Expected Operating Problems:	People Operations Management Money	
Aspects of Future Economic Outlook:	Oakland Co. Investment/Expansion Market Growth Firm Prospect Economic Outlook	

Table 5.19. Summary of Perceptions of High ROI Firms (3-Year Average)

	Most Important	*Least Important . . . .*
Location Incentives:	Sociotechnical Infrastructure Business Climate	

The results for operating problems provide a particularly interesting picture. First, those firms rating themselves as high Overall Performers do not generally foresee many operating problems in the coming year. Indeed, high subjective performers anticipate significantly less difficulty with *People*, *Competitive Strategy*, *Strategic Planning*, *Operations Management*, and *Money* than did low subjective performers. The picture is quite different, however, when one considers the results for the objective performance measures. For example, high sales growth firms expect significantly greater *Money* problems in the coming year than do low sales growth firms. Similarly, high employment growth firms anticipate greater problems with *People*, *Operations Management*, and *Money* than do those firms adding jobs at a lower rate. In fact, the only operating problem result that is consistent across both subjective and objective high performers is the relative lack of concern about the State of the Economy. Apparently, high performing firms are less prone to attributing problems to issues beyond their control.

Table 5.20. Summary of Perceptions of High Sales Growth Firms (5-Year Average)

	Most Important	*Least Important . . . .*
Location Factors as Incentives	Input Availability Residential Proximity	State Taxes
Expected Operating Problems:	Money	State of Economy
Anticipated Use of Business Services:	Management Consulting Printing & Mailing Computing	
Aspects of Future Economic Outlook:	Oakland Co. Investment/Expansion Market Growth Oakland Co. Prospects Economic Outlook	

There are only two types of business services which seem to be associated with high performing firms. Once again, the subjective performance measure did not show any significant differences. However, the high sales growth firms expect to make greater use of *Management Consulting, Printing and Mailing* and *Computing Services* in the coming year. Whether this finding represents a cause or an effect is open to question. What is clear is that demand for these services is associated with high levels of sales growth.

As might be expected, high performing firms (both subjectively and objectively) tend to have brighter economic outlooks than do low performing firms. This is especially true for those firms experiencing high levels of employment and sales growth. In general, high performing firms are planning more investment or expansion in Oakland County than are low performers; there does not appear to be any difference in terms of planned expansion outside of the County for low versus high performers.

The seeming contradiction between the results for subjective and objective high performers underscores the importance of collecting actual performance data about firms. If government is to understand where it can structure meaningful programs, it must be able to accurately differentiate the needs and problems of low versus high performing firms. This and other issues concerning the use of systematic business surveys in economic development planning are discussed in the final chapter.

CHAPTER SIX: SUMMARY AND CONCLUSIONS

This volume describes the first year's research findings for the Oakland County Business Survey. It is by no means a complete summary of all results, since many of the issues will require further analysis of the data and targeted results and recommendations. Subset analyses, estimates of the precision of the key measures in the study and a refinement of the weighting procedures are now underway and will be included in future reports on this research.

It is our hope that this initial volume will serve as a catalyst for broader discussion about the analysis, utilization, and relevance of this study. Discussion can help to target and focus further analysis. This final chapter begins with an overview of the results of the first year of the Oakland County Business Survey, followed by some preliminary policy recommendations and a discussion of future research in this area.

Characteristics of Oakland County Firms

As might be expected, the manufacturing sector dominates the Oakland County economy with a nearly 30% share of the jobs. And while nearly 80% of Oakland County firms are very small, employing five or fewer people, these firms represent only a quarter of the employment base; five percent of the firms employ more than 100 people and account for over half of the existing jobs in the County. Approximately one-third of Oakland County firms currently reside within the I-696 Corridor area.

In terms of growth rate, stage of development, and technical sophistication, Oakland County firms provide an interesting contrast. Even though both firms and jobs in the declining category (losing customers and market share) exceed substantially those in the start-up category, 70-80% of firms are either steady growers or stable. Only about 10% of County business organizations and employees are associated with rapidly growing or technology-based firms. In addition, more than 90% of new business activity is homegrown -- generated by people from the immediate area. Furthermore, these homegrown businesses emerge, in most cases, from existing enterprises in the County. Thus, relatively little new business development is attributable to firms recruited or transplanted from other regions.

Oakland County is primarily national in its economic orientation. In terms of sourcing activity, nearly half the firms use suppliers outside of Michigan but only about 10% are involved in global sourcing. However, about 20% of Oakland County firms are involved in foreign exporting in one way or another. Of these, fewer than 10% have made use of a foreign trade consultant. With respect to auto dependence, Oakland County firms show a strongly bi-modal response. The greatest number of respondents reported having 100% auto dependence while the second greatest number reported being zero percent auto dependent.

Finally, with regard to financial performance, 50-60% of County firms consider themselves to be medium to medium-high performers. Only about 10% consider themselves as either low or high performers. The results for objective measures of performance are highly variable and are discussed further below.

Perceptions of Oakland County Businesses

Our results indicate that Oakland County has many attractive features and few drawbacks as a place to do business. Incentives most important to firms locating in the County center on the quality of the local enviroment, its growth potential, and its proximity to markets and staff residences. Less apparent are the traditional smokestack location factors such as utility cost, wage rates, transportation, and taxes (*Business Climate*). Even those well-known state policies often cited as major impediments to economic development -- worker's compensation, the single business tax, and unemployment compensation -- appear to pose only a moderate problem for business in general. These data make sense when it is remembered that less than 10% of new businesses in the County are created by people coming from outside of the southeastern Michigan area.

Oakland County firms see their most important operating problems as external to their firms (e.g., health insurance cost, domestic competition, state of the economy, attracting capable personnel, and government red tape are at the top of the list). It seems that many firms have a sense that business conditions are changing but are unclear about how to deal with the situation. Indeed, firms do not generally see their own internal operations as requiring major attention (finance, organization, supply relationships, R&D, and labor-management relations were seen as some of the least important operating problems).

In general, firms do not forecast extensive use of external business services. Generic services such as printing and mailing, accounting/tax, and legal were understandably the ones forecast for the most use. The analysis below should help identify those firms in the County most in need of specialized services (e.g., *Strategic Planning, Training and Outplacement*) and help target assistance programs and opportunities for service providers.

The employment outlook in the County is mixed. Growth in the total number of jobs in the County in 1986 was 10.7%. For 1987, job growth is projected to be somewhat slower, with an overall rate of 9.3%. Growth rates will increase slightly among service workers and skilled craftspeople, but will be slower in all other job categories. Great needs and opportunities appear still to exist for the technical staff -- particularly in the area of computers and CAD/CAM. In terms of net employment growth, the service industries dominate in Oakland County. At the center of net job decline is the manufacturing sector, particularly metalworking, fabricated metals, and industrial machinery. Also hard hit have been elementary and secondary schools. Industries in transition (both losing jobs as well as creating substantial numbers of new ones) include motor vehicles and equipment, metalworking, eating and drinking establishments, business services, hospitals, and engineering services.

Oakland County businesses expect to make moderate investments in new equipment in the next year, with some planning to expand at their present site or within the County. Little investment or expansion is planned for outside the County and virtually no firms are planning to leave the County next year. And while markets for products and services are perceived as growing only marginally next year, businesses are generally optimistic about the long run growth prospects for Oakland County (*Economic Outlook Index= 58.4*). Indeed, this seems to be one of the County's most attractive features.

Perceptions by Firm Type

There are significant differences in the problems and needs perceived by firms of varying sizes, types, orientations, and origins in Oakland County. In many ways, understanding the nature of these differences is the key to targeting effective economic development programs and policies.

The first important subset analysis is with regard to **Industrial Sector.** While *Proximity to Residence, Proximity to Markets, and Overall Quality* of the locality were the most important location factors overall, Retail and Other Services see

Proximity to Markets as particularly important. Manufacturers stress *Input Availability* and are most concerned about *State Taxes*. The *Overall Quality* of the locality is most important to Finance and Insurance firms, while *Housing* is a key factor for Business Services as well as Finance and Insurance firms. It seems that the location criteria of even the manufacturing sector has shifted away from the traditional smokestack criteria toward those associated with human capital, supplier access, and overall quality.

The heaviest anticipated users of business services are Finance and Insurance firms and Other Services, not Business Services or Manufacturing as is often thought. This is interesting in light of the fact that Manufacturing firms lead the way in terms of operating problems. Like manufacturers, Wholesale firms see the *State of the Economy* as being particularly significant as well as the issue of *Competetive Strategy*. Business and Other Services, however, seem to indicate the most severe problems with *Money*. In terms of ecomomic outlook, Finance and Insurance, Business and Other Service firms clearly have the brightest outlooks, with Manufacturing having the worst outlook. Further, it is the Retail and Wholesale firms that are most likely to invest or expand outside of the County.

With regard to firm **Level of Technology,** it is clear that the locational preferences for high technology firms are dramatically different from those at lower levels of technology. Higher technology firms emphasize the *Overall Quality* and *Input Availability* of the area and tend to be less concerned about factors such as *State Taxes* and *Commercial Space*. It also appears that the anticipated need for business services is greater across the board for firms at higher levels of technology. The most significant operating problems for high technology firms seem to revolve around the issues of R&D and international competition, whereas lower technology firms expect to have the greatest difficulty identifying new market opportunities and developing new products. In terms of economic outlook, the highest and lowest technology firms have the brightest outlooks, while low technology firms have the bleakest outlooks.

Firm **Stage of Development** turns out to be an important discriminator. While firms at the different stages of development do not seem to display dramatically different locational preferences, (with the exception *Input Availability* which is emphasized by Accelerated Growth and Declining Firms), there are important differences in the need for business services, operating problems, and economic outlook. Not suprisingly, Accelerated Growth firms score highest on the Economic Outlook Index and also project the greatest need for business services, particularly *Employment, Printing and Mailing, Marketing,* and *Computing*

Services. An interesting exception to this is *Technical Services* for which Start-up and Declining firms anticipate the greatest need. In general, the two stages with the most operating problems are Start-up and Declining firms; decliners in particular score the highest on every operating problem with the exception of *Money*, which is a particularly important start-up problem.

Firm Size highlights several important differences among firms. Small firms emphasize *Proximity to Residence* and medium-sized firms emphasize *Proximity to Market* in their location decisions while the *Sociotechnical Infrastructure* becomes an increasingly important factor for larger firms. Business service use tends to be a phenomenon associated with medium-sized and large firms, particularly *Marketing* and *Computing* services. Interestingly, *Insurance and Regulatory Costs, Operations Management,* and *People* are seen as problems primarily by large firms while *International Competition* is more of a problem for small and medium-sized firms. Our analysis shows little, if any, relationship between size and problems with *Money* or *Strategic Planning* and *Competitive Strategy*. Large firms have the most optimistic overall economic outlook while Small firms see their own prospects as well as those of the County as being the best. Medium-sized firms are the most likely to expand or invest, both within the County and outside.

Homegrown firms have a special set of problems and preferences. Compared to firms recruited or transplanted from other regions, they clearly stress the area's *Proximity to Residence* as an important location factor in contrast to transplanted firms that appear to place more emphasis on the issue of *State Taxes*. Homegrown firms anticipate greater needs for business services, particularly *Management Consulting, Legal,* and *Computing Services*. In a sense, homegrown firms appear to be more "sheltered" than firms originating from elsewhere -- the former tend to have greater *Money* problems while the latter see *International Competition* as a more significant problem. Our evidence suggests that homegrown firms are more stable and predictable in terms of employment growth and are less inclined to invest or expand outside of Oakland County. In short, homegrown firms tend to stay in the area, but encounter a special set of problems because of it.

Exporting firms have a number of unique needs and problems. The more traditional smokestack location criteria (e.g., costs, wage rates, and taxes) seem less important to exporters; instead, these firms are concerned with the area's *Input Availability* and convenience to air transportation. Exporters expect to make the most use of *Technical* and *Marketing* services and see *Technology and Production* and *International Competition* as their most pressing problems. Finally, exporting firms are more likely to invest or expand outside of the County since they see their

Market Growth potential as being quite strong but the *Oakland County Prospects* as being significantly weaker compared to non-exporters.

New firms appear to focus their attention inward, on the task of establishing a new market position, and are less concerned about the relative attractiveness of the area, as evidenced by their lack of concern over issues such as *Overall Quality, State Taxes, Insurance and Regulatory Costs, and State of the Economy.* In contrast, **high growth firms** tend to be most concerned with the area's *Input Availability* and the issues of *Production and Technology and International Competition.* And in terms of those firms located within the **I-696 Corridor**, they tend to emphasize a more traditional set of location factors--*Business Climate, Commercial Space, and Transportation.* Given their emphasis on the Business Service and Finance and Insurance sectors, Corridor firms also tend to be less concerned over issues of *Technology and Production*, and more preoccupied with the *Overall State of the Economy* and *Competitive Strategy* and *Money*.

Finally, there are some important differences to note regarding firms at different levels of **Performance.** High performing firms (in terms of profitability) appear to value elements associated with the social and technical infrastructure of the County. Furthermore, those firms experiencing the highest levels of sales growth seem to emphasize the importance of *Input Availability* and *Proximity to Residence*. An emphasis on the traditional location criteria is once again lacking. Rather than expecting relatively fewer operating problems, high sales growth firms expect significantly greater *Money* problems and high employment growth firms foresee greater problems with *People, Operations Management,* and *Money* than do lower performers. This does not seem to translate into greater use of business services, however: high performers expect to make greater use of only *Printing and Mailing* and *Computing* services. High performers also tend to be less concerned about the *Overall State of the Economy*, suggesting that they are less prone to externalize problems onto issues beyond their control. Lastly, high performing firms, as might be expected, have bright economic outlooks. Importantly, however, such firms are also planning more expansion and investment in the County than are low performers.

Policy Issues and Application

The findings of this study have application in a number of different areas. This section of our concluding chapter addresses these issues of application from four different perspectives: (1) the State's policies and programs; (2) the County's economic development programs and practices; (3) the interests of institutions such as utilities, the telephone company and banks; and (4) the perspective of individual County businesses.

State Policies and Programs for Economic Development The findings of this study provide a basis for making several policy recommendations that might be implemented at the State, rather than at the County level. First, the results focus considerable attention on the new and growing segments of the County, and thus the new and growing parts of the State. These firms tend to build from the existing industrial base, but tend to broaden that base and serve to diversify the economy. This, combined with the finding that exporting firms tend to be among the most profitable and rapidly growing, seems to suggest that growth at the State level, and the gradual revival of the manufacturing base in Southeastern Michigan, may be furthered by a set of policies designed to encourage new business creation, exporting, and diversification. This is not an argument to neglect the existing manufacturing base, but rather to build upon it. Use of State level policy instruments such as the Strategic Fund, and the focus of State initiatives such as the Industrial Technology Institute or Molecular Biology Institute, might be informed by the apparent importance of new business creation uncovered by this study. Furthermore, the importance of the *Overall Quality* of the local business and social environment rather than traditional industrial locational criteria such as taxes and wage rates may suggest that the State reevaluate its priorities in marketing Michigan and Oakland County to outside companies. Indeed, it seems that the quality of the business and social environment and economic development are interrelated goals rather than mutually exclusive objectives.

Oakland County Economic Development Policies. In general, the findings of this study can be of greatest use by helping to target the types of businesses that contribute the most to the economic base of the County, and the conditions under which they are created and grow most successfully. The findings will also help to identify those firms that are currently having the most difficulty, and could benefit most by changes in policy. More specifically, the findings can be used to identify specific locational factors that are of prime interest to specific types of firms, or through further analysis of the data by ZIP code, locational factors that are of primary interest to firms in particular areas of the County.

The findings of this study have also focused attention on a particular type of firm -- the technology-based, locally-founded, growth-oriented company. Often these firms are also those that are most heavily involved in exporting. There are some clear implications regarding the findings for these firms, and future years of the study will help to identify successful strategies for encouraging their expanded growth. For example, the degree to which these newly created firms decrease direct dependence on the automotive industry should continue to be of high interest. The findings regarding the origins of most new firms also suggests that facilitating the local development of firms as opposed to recruitment of firms from outside of the region, may be an issue worthy of further discussion. . Assistance in identifying export markets for existing firms would also appear to be a high priority.

It also seems that the region has a unique opportunity over the next five years with respect to the steady downsizing of the white collar ranks in the major industrial corporations. While the short-term job loss represents a major problem, it may, on a longer basis, represent an important source of entrepreneurs for the region. Already, significant numbers of these people appear to have become involved in new business development. A conscious economic development strategy aimed at highly skilled and qualified white collar employees, who are knowledgeable about the region and committed to it, could have a significant impact.

Utilities, Financial Institutions, and Service Providers. Many community institutions such as banks, electric and gas utilities, and the telephone company, also have a natural interest in the findings of this study. Patterns of usage and forecasts for expansion should be of interest to utilities and the phone company, while expected demand for financial and business services, and areas of business growth in general should be of high interest to the banking community and other service providers. We have already received several inquiries about further analysis of the first year data, and the potential for becoming involved in next year's study. We view on-going involvement of such "community stakeholders" as a highly desirable part of the conduct of this study.

Individual Businesses. Individual businesses, and business service firms in particular, may find this useful in planning their expansion, or identifying the areas in which firms have expanded most successfully. They may also find that this study gives them a substantially different viewpoint of the County and regional economy as a whole, and an awareness of some of the characteristics of firms that are growing successfully in their particular industry or market. By its very nature, this study provides a "mirror" in which County businesses can look at themselves; as such, it also gives individual businesses a voice in the creation of local economic development policy. Indeed, the findings are based almost entirely on the perceptions of County businesses, and should serve to help draw them into the discussions of future directions for the region.

Future Research: A Partial Agenda

This book has presented an overview of the first year of research from the Oakland County Business Survey, and a presentation of some of the basic findings. In terms of analysis, this volume has only scratched the surface, leaving many important topics either partially explored or neglected altogether. It is our intent that this serve as a beginning for further study of the regional economy, and further study of the process of new firm creation and growth and the role it plays in economic development. Several research topics are natural extentions of this work and will be expanded in the future. These are briefly listed below.

Sector-level analysis. This volume presents overall results and some subset analysis but does not focus heavily on any particular sector or type of firm. Future analysis will investigate the perceptions of important firms types such as manufacturers, high- technology firms, and start-up firms. This type of analysis feeds directly into targeting specific industries and types of firms as a part of an evolving strategy of economic development.

Longitudinal tracking of the evolution of the Oakland County economy. Although this volume has focused on the results for one year, the current study will continue over the coming five-year period. This research will focus on the factors that drive the evolution of the region's economy, and the refinement of a set of *Employment* and *Economic Outlook* indicators.

Comparisons of growth projections with econometric methods. This study has used a new technique for forecasting employment and economic trends based on firm-level data. Further refinement of these techniques and comparisons of ongoing econometric predictions of growth in the regional economy should be able to highlight the advantage of this new technique over conventional econometric projections.

Extension of this research paradigm to other regions. Many of the interpretations that might be drawn from these results are limited by the fact that there are very few comparative studies that have focused on a regional economy in this manner. Testing of the broader model of the creation of new technology-based organizations developed by Hart and Denison (1987) also requires expanding this research beyond the Oakland County region.

Study of firm births and deaths. This research focused attention on the creation of new firms, but could still benefit from more intensive study of firm births. By the same token, a more comprehensive study of firm deaths would help to round out the research presented in this book. Both of these populations are notoriously difficult to locate. Several research designs are now being considered for extending this research into these new areas.

Examination of internal management factors. This book gave only minor attention to the data on organization and strategic management. These results, focused on the internal characteristics of firms in various sectors at various stages of development and levels of technology, will be presented in other publications. One primary objective of our research in this area will be to better understand the internal processes that are associated with successful adaptation to changing business conditions.

Case studies of firm adaptation. In addition to the above studies, a series of case studies are also being planned that will help to better understand the actual development processes within growing firms as they adapt to their external environment. Once completed, these case studies will also be designed to contribute to teaching about the management of new and rapidly growing firms.

As we complete this overview of the results of the first year of the Oakland County Business Survey, work has begun on the design and conduct of future studies. The instrument is being refined for the second year of the study, and a supplemental sample of firms from the MESC data base is being drawn to increase the size of the sample, particularly with regard to firms created within the past two years. In our analysis of the second year data, we will not only be able to report results similar to those presented here but will also begin to look at change in the County on a number of critical dimensions, including employment and economic outlook. It is this dynamic analysis that will best provide the yardstick for measuring the impact of public programs and policies and tracking the further evolution of the region's economy.

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APPENDICES

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APPENDIX A

CREATING NEW TECHNOLOGY-BASED ORGANIZATIONS: A SYSTEM DYNAMICS MODEL

Policy Studies Review, February 1987, Vol. 6, No. 3

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CREATING NEW TECHNOLOGY-BASED ORGANIZATIONS: A SYSTEM DYNAMICS MODEL

One of the persistently neglected topics in organizational theory has been the creation and development of new organizations. With a few important exceptions, (Starbuck, 1971; Greiner, 1972; Pennings, 1981; Kimberly & Miles, 1981; Kazanjian, 1984; Van de Ven et al., 1984; Gartner, 1985) this area has received relatively little attention in comparison to that given to the problems and issues associated with large, mature bureaucracies (Miles & Randolph, 1981). This may have been an appropriate scientific response in the past, but the collective orientation of the discipline now appears to be changing to adapt to an emerging set of problems relating to how new organizations are successfully created and nurtured. Fields as diverse as organizational development, population ecology, urban planning, economic development, and group dynamics would all seem to benefit from an integrated theoretical and empirical approach to the creation and development of organizations.

Although many different disciplines have made contributions to this topic, each has generally offered a distinct research tradition, adding to the lack of integration. Separate literatures on individual entrepreneurship, organizational and management factors in start-ups, the financial structure of new ventures, and the sociocultural conditions that encourage new business creation address one part of the phenomena, but do very little to provide integration to the diverse set of issues involved in new business creation. As Van de Ven et al. (1984) have noted, each of these approaches has emphasized different units of analysis, different methodologies, and has different strengths and weaknesses.

Partially because of this fragmentation, there is still very little systematic knowledge about the processes or patterns of successful new business creation. The purpose of this paper is to set the stage for more systematic inquiry by presenting a cohesive theoretical model of the creation and development of one particular type of organization: new, technology-based organizations (NTBOs).

Our reasons for selecting this subset of organizations are both theoretical and practical. With regard to the former, it seems more likely that a theory of greater specificity will present a better targeted research agenda, will develop more quickly, and will provide an important contribution to existing theories of the organizational life cycle. With regard to the latter, this type of organization seems to be central to emerging strategies for economic revitalization (OTA, 1983). More specifically, NTBOs are seen increasingly as holding the key to innovation and change, particularly in the manufacturing sector--the economic "motor" which drives the growth of the service and retail economies (Baba & Hart, 1986).

We define "technology-based" organizations as ventures that emphasize the role of research and development in the introduction of new products or services, or as those that place their major strategic emphasis on the exploitation of technology in products, processes, or services. This rather broad definition of technology-based organizations seeks to include all of those business organizations in which technology is a key element of business strategy. This would, in theory, include organizations as diverse as a satellite-based data transmission service, a manufacturer of low technology products with an investment in new process technology, a research laboratory, or the producer of a "high technology" product. The inclusiveness of this definition has a clear purpose: we hope to address the generic set of problems faced by organizations that are in some way technology-dependent.

The central concept in our model is that new business creation and development takes place within, and is therefore dependent upon, a local context or "ecosystem." Like any natural process, individual organisms both feed from, and contribute to the ecosystem; and characteristics of both the organisms and the ecosystem are necessary to understand the creation and development process. Such new business creation ecosystems, referred to here as Technology Development Clusters (TDCs), consist of a set of "resources" (technical expertise, venture capital, services) and existing "inhabitants" (individuals, firms, and institutions) which provide more or less of the essential "habitat" required for spawning NTBOs. A key element in the functioning of such systems is technical expertise: universities, corporate or government laboratories serve to incubate technical innovations while the surrounding community provides an environment in which fledgling organizations can thrive.

While several authors have applied ecological principles to organizational theory in recent years, most have addressed the dynamics of organizational populations and their life-cycles, (e.g., Hannan & Freeman, 1977; Kimberly & Miles, 1981). These authors have generally not examined different kinds of firms in the context of their surrounding environment, in an "ecosystem" context. Indeed, the field of ecology recognizes two major divisions or approaches. The first, *autecology*, focusses on the ecology of individual organisms and populations, while the second, *synecology*, studies systems of many species and their interaction with the immediate environment--whole communities and ecosystems (Whittaker, 1975).

This paper departs from most ecological treatments of organizational growth to date by adopting explicitly the latter approach. As such, we are concerned less about the birth and death rates of particular organizational populations than we are delving into the characteristics and functional interrelationships present in communities with the property of or potential to produce and sustain NTBOs.

FOUR RESEARCH TRADITIONS

Using the concept of Technology Development Clusters as an organizing principle, the literature concerning the creation and development of new organizations can be categorized into four distinct research traditions: (1) ecological factors: (2) comparative studies of new venture structures; (3) group and organizational processes; and (4) entrepreneurial characteristics. The research traditions are "nested" such that each tradition addresses progressively a more microscopic set of issues. By integrating the four traditions within a larger systemic context, the interplay between multiple levels of analysis can be appreciated without losing sight of the unique contribution that each has to make. A discussion of each of the four traditions is presented below, and Table 1 summarizes the major findings and citations from each of the traditions.

Ecological Factors

Two major types of studies may be grouped under this tradition. First, as discussed above, research by organizational *population ecologists* has addressed the dynamics of populations of organizations and their implications for the birth and death rates of firms (e.g., Hannan & Freeman, 1977; Pennings, 1981; McKelvey & Aldrich, 1983). Second, there is a long history of research in *economic development* and *location theory* for industrial organization's (e.g., Conroy, 1975; Birch, 1981; Noyelle & Stanbeck, 1983; Reynolds & West, 1985). The latter studies examine industrial organizations decisions to locate or expand in particular metropolitan areas or regions and are usually conducted by urban and regional planners or development economists. Factors examined by these studies have ranged from traditional locational criteria such as taxes, to utility costs, and transportation; to elements of the business infrastructure such as the availability of venture capital, technical expertise and support services (Gorlow, 1984; Schwartz & Teach, 1984); to the regional quality of life and culture (Dorfman, 1983; Goldman, 1984; Rogers & Larsen, 1984; Segal, 1984).

Results from studies in this tradition have helped to underscore the importance of centers of technical expertise such as university laboratories or other types of private, public, or nonprofit laboratories (Cooper, 1984), and the key importance of attitudes toward the technology transfer process to the success of new technology-based organizations (Bullock, 1983; Abt Associates, 1984; Baba & Hart, 1986). This work has also helped to distinguish the needs of NTBOs from those of more traditional types of business organizations (e.g. Jarboe, 1983). Research in this tradition usually relies upon either survey or case methods to assess particular locations. A number of unresolved issues still exist in this area however, and the overall contribution of population ecology to understanding such phenomena has yet to be assessed.

Comparative Studies of New Venture Structures

Research and writing in this tradition have been concerned with the origins of new firms, their initial design and financing, and their ultimate success or failure. Studies have most often examined multiple firms, usually within a particular industry and region, and have generally been conducted by business economists or management scientists.

This research tradition has produced many interesting insights which greatly aid in the understanding of NTBOs. For example, several studies have shown that new technology-based organizations tend to be spawned locally, applying technology transferred from larger "incubator" organizations such as university or corporate laboratories (Cooper, 1971; Cooper & Bruno, 1977). And while relatively few such firms are successful at obtaining venture capital (most having to finance early operations through informal sources), they tend to have survival rates much higher than other small businesses (Roberts, 1970; Brophy, 1983; Bruno & Tyebjee, 1984; Timmons & Fast, 1984). This is partly explained by the fact that rather than failing, many struggling NTBOs with good ideas are acquired by larger companies (Vesper, 1980; Bruno & Cooper, 1982).

TABLE 1

The Research Traditions and Their Findings

Citations	Generic Findings
	1. Ecological Factors
Abt Associations, 1984; Baba & Hart, 1986; Birch, 1981; Bullock, 1983; Conroy, 1975; Cooper, 1984; Dorfman, 1983; Goldman, 1984; Gorlow, 1984; Hannan & Freeman, 1977; Jarboe, 1983; McKelvey & Aldrich, 1983; Noyelle & Stanbeck, 1983; Pennings, 1981; Reynolds & West, 1985; Rogers & Larsen, 1984; Schwartz & Teach, 1984; Segal, 1984	- Centers of technical excellence, particularly universities and other private, public, or nonprofit laboratories, are critical to the incubation of NTBOs. - Attitudes toward technology transfer in the incubators are of key importance. - Technology-based organizations are different from traditional manufacturing firms in their location preferences. Their primary needs are for ... a supply of skilled engineering professionals ... availability of top-notch technical expertise ... good quality of life for the generally well-educated employees ... a well-developed network of support services, supplies, and clients ... start-up capital. - NTBOs tend to cluster in particular areas and focus on particular technologies. Eventually, this agglomeration of entrepreneurs, firms, and support services reaches a "critical mass"--the point where it feeds off itself, with companies spinning off from other companies.
	2. Comparative Studies of New Venture Structures
Brophy, 1983; Bruno & Cooper, 1982; Bruno & Tyebjee, 1984; Cooper, 1971; Cooper & Bruno, 1977; Roberts, 1970; Timmons & Fast, 1984; Vesper, 1980	- Most NTBOs are "homegrown" rather than moving from elsewhere. - Successful ventures tend to be founded by groups rather than individuals. - NTBOs have survival rates much higher than other small businesses. - Relatively few NTBOs obtain venture capital. - Successful ventures tend to engage in rapid transfer of technology from larger incubator organizations. - Rather than failing, a high proportion of NTBOs are acquired by larger companies.
	3. Group and Organizational Processes
Bennis & Shepard, 1956; Churchill & Lewis, 1983; Galbraith, 1982; Greiner, 1972; Kazanjian, 1984; Kimberly, 1981; Maidique & Zirger, 1985; Perkins et al., 1983; Quinn & Cameron, 1983; Smith & Miner, 1983; Starbuck, 1971; Steinmetz, 1956; Webster, 1976; Van de Ven et al., 1984	- As technical organizations mature, they face a shifting set of dominant problems requiring different sets of skilled behaviors. - Criteria of effectiveness also shift as the organization grows. - Organizational creation is fundamentally a process of group development, with predictable cycles of euphoria and conflict. - Appreciation by technical entrepreneurs of the importance of management concerns and personnel is critical. - Successful NTBOs develop brief but clear business plans and network broadly among funders, clients, and suppliers. - Successful NTBOs tend to begin small and develop incrementally, learning from their mistakes. - For NTBOs, the events and activities prior to formal firm start-up are critical.
	4. Entrepreneurial Characteristics
Carland et al., 1984; Collins & Moore, 1971; Denison & Alexander, 1986; Filley & Aldag, 1976; Hagen, 1960; Hartmann, 1959; Hornaday & Abound, 1971; Hull et al., 1980; McClelland, 1965; Miller, 1983; Palmer, 1971; Schrage, 1965; Shapero, 1975	- There are different types of entrepreneurs, ranging from those oriented toward rapid growth to those oriented toward stability. - Successful entrepreneurs tend to have the following characteristics: ... drive and energy ... high need for achievement ... self-confidence ... commitment ... preference for reasonable risks coupled with responsibility for results ... ability to use feedback in problem solving ... high tolerance for ambiguity ... ability to self-impose goals ... advanced education but not premiere technical innovators ... displeasure or dissatisfaction with existing work situation.

While findings from this research tradition have been rich in information and high in internal validity, they have often been limited in their degree of generalizability. Since most studies have been restricted to particular industries in specific geographic locations (e.g., electronic firms in the Silicon Valley), it would be useful to examine other kinds of NTBOs in a variety of locations.

Group and Organizational Processes

A third tradition focuses upon the intraorganizational characteristics of start-up companies, addressing primarily behavioral rather than financial or structural characteristics (e.g. Starbuck, 1971; Kimberly, 1981). These studies sometimes compare multiple firms, but are more likely to be based upon case studies or clinical methods.

Findings from this tradition indicate that successful firms are most likely to have been founded by groups rather than by individuals, and that organizational creation is fundamentally a process of group development, with predictable cycles of conflict and euphoria (Bennis & Shepard, 1956; Cooper & Bruno, 1977; Perkins et al., 1983). Events and activities prior to formal start-up are also very critical (Kazanjian, 1984). Management and personnel concerns are particularly important for technical entrepreneurs to understand if they are to be successful (Webster, 1976).

As NTBOs mature, they face a shifting set of dominant problems and shifting criteria of effectiveness (Greiner, 1972; Galbraith, 1982; Quinn & Cameron, 1983; Kazanjian, 1984). Successful start-ups appear to begin small and develop incrementally, learning from their mistakes (Van de Ven et al., 1984). A strong network of funders, customers, and suppliers appears to be more important than the technical excellence of the firm's product or process (Maidique & Zirger, 1985). Firms with clear but brief business plans and strong networks appear to be the most likely to succeed (Van de Ven et al., 1984).

This research tradition has generated a series of provocative findings, but like the previous tradition they are a set of findings that are in some ways difficult to use as a basis for generalization. They are drawn from limited samples, of different types of organizations, in different regions of the country. As a result there is little comparative base from which to generalize and realize the full power of the findings.

Entrepreneurial Characteristics

The final broad research tradition that bears upon the creation and development of NTBOs is the literature on the characteristics of individual entrepreneurs. Such studies have usually traced the personality traits, background characteristics, and career patterns of individuals, and tried to relate them to the choice to pursue an entrepreneurial career, or the rate of success at starting new ventures (e.g., Schrage, 1960; Hornaday & Abound, 1971; Collins & Moore, 1971; Shapero, 1975; Denison & Alexander, 1986). Such studies have typically been conducted by psychologists, and most have attempted to develop and validate tests that can be used to uncover an individual trait called "entrepreneurship" (e.g., Palmer, 1971).

Research in this tradition has generated a number of useful findings, such as the idea that there are different types of entrepreneurs, some oriented toward rapid growth, and others more oriented toward stability (Hartmann, 1959; Miller, 1983; Carland et al., 1984). This suggests that any research on entrepreneurship or new business creation must be specific about the goals and objectives attributed to an individual called an "entrepreneur," as well as the criteria appropriate for the evaluation of the organizations they create (e.g., Filley & Aldag, 1978). Other findings representative of this research tradition help to outline the individual characteristics of successful entrepreneurs. Research suggests that entrepreneurs are likely to have a high need for achievement (McClelland, 1965), and have self-confidence, commitment, drive, and energy (Hornaday & Abound, 1971). Their cognitive style seems to include a preference for reasonable risks accompanied by responsibility for results, a high tolerance for ambiguity, the ability to impose goals upon themselves, and the ability to use feedback in problem-solving situations (Hull et al., 1980). Entrepreneurs in technical areas also typically have an advanced education, but are not often premier technical innovators (Roberts, 1970).

While interesting in its own right, this research tradition has not generally produced findings that are pertinent to understanding new venture creation. By focusing upon individual backgrounds and traits--variables that can not be changed--rather than actual business behavior, such research provides little potential guidance for actual entrepreneurs to enhance their prospects for success.

INTEGRATING THE FOUR TRADITIONS: A SYSTEM DYNAMICS MODEL

To integrate the four research traditions outlined above, the authors propose an ecosystems model using system dynamics as a vehicle. A system dynamics framework seems necessary at this stage of development because of the inherent nature of the phenomenon. A suitable model must allow for reciprocal causality, nonlinearities, multiple causality, overidentification, and sheer indeterminacy. These complexities, as well as the complexity inherent in integrating the four research traditions, must inevitably rule out the sort of linear, nonrecursive model often popular in the social sciences. A system dynamics framework generates a large number of hypotheses which can be expressed in a more conventional form, but at least at the outset, such a framework allows for the phenomenon to be examined in both process and variance terms (Downs & Mohr, 1976; Mohr, 1982). This allows for the study of both the factors and features that characterize successful new business creation, and the larger process within which new business creation is embedded.

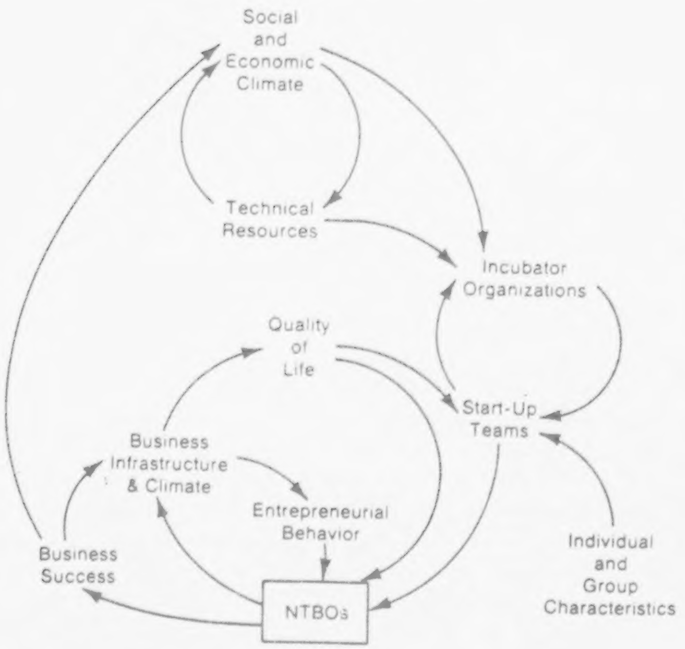
The central concept in this model is that of the Technology Development Cluster (TDC). TDCs are geographically-defined locations where new technology-based organizations seem to proliferate and cluster, and where a critical mass of experience, risk capital, and technical expertise evolves. As mentioned above, this concept is an outgrowth of the emerging population ecology perspective used to explain organizational births (Pennings, 1981; Hannan & Freeman, 1977) in that it conceives of urban environments as organizational "habitats" that contain the essential elements for spawning particular types of organizations. It goes beyond that perspective, however, in defining territorial "ecosystems" via unique sets of technical resources, niches, and existing inhabitants, and by defining a process by which firms gestate, materialize, and develop within that milieu.

The system dynamics model presented in Figure 1 postulates some of the key elements and functional interrelationships associated with Technology

Development Clusters. Central to the creation of NTBOs is the existence and availability of high-quality *technical resources*--expertise in research and development, computer capability and associated technical support. These resources contain the raw material--the innovative technical ideas, capabilities, and people--necessary for the spawning of NTBOs.

FIGURE 1

Dynamic Model of the System for Creating New Technology-Based Organizations


Social and Economic Climate
Technical Resources
Incubator Organizations
Quality of Life
Start-Up Teams
Business Infrastructure & Climate
Entrepreneurial Behavior
Business Success
Individual and Group Characteristics
NTBOs

Of particular importance in this regard is the presence and orientation of technical research and development organizations: university laboratories and institutes, as well as corporate, government and nonprofit research facilities. All such institutions create technical innovations; many of these innovations also have commercial potential. Under the proper conditions (discussed further below), these organizations and the social context within which they exist can serve to develop *entrepreneurs* and *start-up teams* motivated to exploit these opportunities. In short, they come to serve as *incubator organizations*, spinning off new firms as an important adjunct to their primary mission of creating new knowledge.

Several studies have shown that such organizations (e.g., laboratories, institutes, etc.) play an important role in the seeding, incubation, and creation of new technology-based organizations (Bruno & Cooper, 1982; Cooper, 1971; 1984; Roberts, 1970; Segal, 1984). In particular, Cooper (1984) has suggested an interesting combination of factors that tend to make R and D organizations likely to function as "incubator" organizations. He found that those organizations that recruited capable, ambitious people, and were also afflicted by management problems or periodic crises, seemed to produce more spin-off firms. Indeed, periods of internal difficulty or externally imposed change seemed to be closely correlated with the creation of spin-off firms.

Other studies have suggested that a positive attitude toward technology transfer, or at least an attitude of benign neglect, can be an important element in the ability of a technical or research organization to spin out new firms (Abt Associates, 1984; Bullock, 1983). Again, drawing upon ecological theory, it might be postulated that new venture creation is fostered in TDCs where a *symbiotic* relationship exists between potential incubator organizations and NTBOs--where neither entity is injured by the relationship (in many situations both may benefit). In contrast, where potential incubator organizations view the spawning of NTBOs as a *parasitic* or *predatory* phenomenon, such activity would obviously be actively resisted. Baba and Hart (1986) have also suggested that the internal organization of a research setting has an important impact on spin-offs and commercial application. Universities, for example, are far more likely to produce spin-offs and applications when they are structured in a manner that encourages long-term, interdisciplinary research in direct collaboration and with direct sponsorship from industry partners.

Given that incubator organizations allow for the development and emergence of technology-based business ideas, the *business infrastructure and climate* of the TDC quickly become the next critical factor (Eisenhardt & Forbes, 1985). The vast majority of NTBOs appear to be created by local founders (Cooper, 1984) and one of the distinguishing characteristics of successful entrepreneurs is that they know many other entrepreneurs (Denison & Alexander, 1986). Thus, the presence of local entrepreneurs and the contribution that they make to the composition of start-up teams, plays a critical role in the creation of new firms. Also important in this regard are the skills and experience of local business service providers (e.g., lawyers, accountants) and the attitudes and inclinations of local investors. Indeed, one of the major barriers to the emergence of NTBOs in a given area is the lack of a "network" of such individuals (see Rogers & Larsen, 1984).

As more firms are successfully created within a given Technology Development Cluster, a perception of entrepreneurial *business success* begins to emerge. This helps to augment the network of entrepreneurial *individuals and groups*, technical linkages, capital sources, and business services that can be drawn upon by start-up teams with a technology-based new business idea. Once this system of networks reaches a "critical mass" it begins to feed off itself, multiplying the experience base that a TDC may bring to bear on the creation of new technology-based organizations. As this agglomeration process proceeds, it creates a "culture of experimentation," where *entrepreneurial behavior*--risk-taking and failure--become integral to the process of learning and technical development (Rogers & Larsen, 1984; Maidique & Zirger, 1985). Associated with this cultural development is the gradual establishment of a network of experienced investors and consultants--those risk-takers who have met with early success in such ventures and who then become active participants in the "risk capital" and start-up market. The growth of this network has the effect of slowly altering the investment portfolios and risk preferences of an increasingly wide set of more traditional investors and consultants (Gibson, 1983; Wetzel, 1983).

The *quality of life* and resources of the immediate area itself also come into play. A growing body of evidence suggests that NTBOs are fundamentally different from traditional firms in their needs and choices of location (Jarboe, 1983; Goldman, 1984; Gorlow, 1984). These new ventures are dependent upon well-educated, ambitious people and are usually oriented toward research and development and the manufacture of high margin-to-weight products. Thus, few of the factors important to traditional manufacturing firms are of primary interest to new technology-based organizations: wage rates, costs of utilities, cost of living and proximity to major markets play a secondary role to such emergent factors as:

> Access to technical expertise. Linkages with universities, corporate, government, or nonprofit research activities offer new technology-based organizations continuous interaction with key experts, use of facilities and services, and a steady stream of employees in the form of students, graduates, researchers, and faculty.
>
> Availability of support services. The area must provide an infrastructure of business services of high quality and experience. Legal services, accounting and financial services and, management, marketing, and manufacturing expertise, are all critical to the survival of a newly created firm. Seed capital and venture capital networks are also invaluable to the new technology-based firm. Access to these services during start-up and the early going is critical to business success.
>
> Quality of life. New technology-based firms also seem to cluster in areas that offer an attractive living situation. This includes such factors as overall ambiance, cultural, recreational, and entertainment opportunities, as well as housing quality, and the quality of public schools.

The only traditional locational factors which seem to be important to NTBOs are access to a good international airport for the transportation of people and products, and proximity to suppliers, customers, and other similar firms. Local zoning and building codes, economic development programs, regulation, and tax rates appear to help make some locations more attractive than others, however, it seems that the administrative attitude associated with such programs is as important as their level of stringency.

The final contextual feature of the model presented in Figure 1 is the global *social and economic climate* of the potential TDC. Although there is little research on the relationship between overall social and economic climate and the creation of new technology-based organizations, we offer a hypothesis: within those communities that include extensive technical resources, either a highly "positive" climate or a highly "negative" climate, will be associated with the creation of more technology-based firms than a complacent, "business-as-usual" climate. This curvilinear function presumes that a negative climate may lead to a reallocation of both technical and business resources in an effort to foster technology transfer and new business development, and that a highly positive climate will also facilitate the technology transfer process and new business development.

The above hypothesis again flows from ecological theory: every community and ecosystem develops, through a process of natural succession, to a "climax" state--that mix of inhabitants that is best adapted to the resource base, as moderated by the climate (moisture, temperature, etc.) of the region. Since in nature, climate variables change only very slowly, ecosystems can and do exist in dynamic equilibrium over long periods of time, barring perturbations (e.g., human intervention) that would set them back to earlier stages of succession. In the world of organizations and human affairs, however, the social and economic "climate" can change much more precipitously (e.g., recession, technological innovation, changing values) making preexisting "climax" states obsolete, and business-as-usual an inappropriate strategy. Disequilibrium forces difficult and sometimes painful changes in roles, functions, and niches for existing organizational inhabitants.

INTRAORGANIZATIONAL PROCESSES

In addition to the complex set of situational factors that are critical to the establishment and development of new technology-based organizations, it is also important to recognize that each individual organization is a highly dynamic entity, moving rapidly through a complex set of developmental stages. As mentioned earlier, relatively little research has been done on growth and development processes within organizations, and that which has been presented does not often directly address the problems of technology-based organizations (Pondy, 1969; Starbuck, 1971; Greiner, 1972; Denison, 1985). The limited number of authors who have addressed this problem (Kazanjian, 1984; Van de Ven, Hudson, and Schroeder, 1984), have emphasized the importance of examining empirically the stages and sequences through which new technology-based organizations pass. Kazanjian (1984) has also critiqued the stage model approach and argued that most stage models concentrate on internal structural characteristics, but ignore the emergent functional problems and the adaptive entrepreneurial behaviors necessary to solve them. He also makes the criticism that existing stage models seldom include the critical set of activities that take place prior to the formal start-up of a new firm.[1]

An integral understanding of intrafirm dynamics is also needed in order to access accurately "business success" for new technology-based organizations. Judging the performance of a new firm is like shooting at a moving target; it is nearly impossible to find stable, comparative measures for something that must evolve and change rapidly in order to succeed. Traditional business measures such as profitability can be very misleading: most new companies show losses in early years, and usually reinvest their earnings to fuel the growth process. Finally, the importance of different criteria of performance may vary drastically in a short period of time, thus limiting any ability to compare firms that superficially may appear to be at a similar "stage."

This problem leads us to two conclusions. First, this situation underscores the importance of applying simultaneously a theory of the process by which firms develop and a theory that explains the variance in the success of new firms. A process theory can be informed by noncomparative evaluation in ways that a variance theory cannot. A preliminary understanding of such processes may, over time, give way to a reformulated variance theory that is able to overcome the original difficulties of comparison. Second, a broad-based approach to assessing performance with comparative measures must be taken to maximize the possibility that effectiveness can be accurately measured. We propose consideration of the following five types of criteria.

Survival

Given the high rate of new business failure, often estimated to be as high as 50 percent within the first two years, simply surviving must be considered one measure of effectiveness. As Cooper (1971) has shown, new technology-based firms may well have a survival rate that is higher relative to the survival rate for firms in general, even though their mortality rate is still high in an absolute sense. Each year of survival should be taken as at least a minimum indication of effectiveness.

In addition, all forms of discontinuance do not represent failure, and some may well indicate that a firm has been highly successful. Many successful technology-based firms are eventually acquired by a larger firm that has the requisite capital to exploit the market which exists for their new products. Licensing agreements may also, on the surface, look like decline, shrinkage, or discontinuance, when in fact they represent a desired end point for a new technology-based firm. Limited research and development partnerships may provide one example of a situation in which this pattern might be intentional.

Growth

A second set of effectiveness measures is more dynamic in nature. These assess the change and growth of a new organization on a set of key dimensions per unit time. Growth in sales, growth in employment, and growth in market share can all be taken as measures of success and effectiveness for the new firm. Research may ultimately show that there is a curvilinear relationship between growth and long-term survival and effectiveness, and that explosive growth creates an instability that has negative long-term impacts. Until this point, however, our working assumption is that growth in these measures is an indication of effectiveness.

One important caveat in examining measures of growth concerns the comparability of growth rates for firms at different stages, ages, and sizes. Doubling in size is often easy for a small firm, and is also a reasonable strategy. Doubling in size for a larger firm is much more difficult and sometimes risky. Once again, this emphasizes the necessity of interpreting quantitative data in light of the processes involved in development, as well as the variations in the quantitative measures themselves.

Measures of Current Financial Health

The third set of measures comprises a set of rather conventional financial criteria designed to assess the health of a firm. These measures must be applied with care to extremely young firms, but are more appropriate as firms grow beyond the initial start-up phase. As stated, they also represent more static measures than the growth measures presented above. Obviously, change in these measures could also be used to assess the health of a firm.

Four measures might be considered, and other conventional financial measures may be added to this list as well. We would include productivity, as measured by either aggregate sales per employee, or other measures of output per unit time; indebtedness, represented by a measure such as the debt/equity ratio; liquidity, or the amount of working capital on hand as measured by the current ratio; and profitability, as measured by return on sales or return on investment.

These measures are important indicators of the effectiveness of new firms for two reasons: First, they are direct indicators of financial health and are established methods of evaluating performance. Second, and far more indirect, because these are established measures of performance, a new firm will often be evaluated by these criteria whether they are appropriate or not. This is particularly true for publicly-held firms, who much often limit long-term investment out of the need to show a better short-term financial picture.

Value

A fourth feature of the performance and effectiveness of new technology-based organizations is their net value, and the change in the value over time. When a company is publicly-held, such a measure is easily obtained through the price/earnings ratio. For privately-held firms, this value could be estimated through established valuation procedures. For research purposes, a panel of experts could be assembled that would attach a hypothetical value to each firm, or a research team could learn to apply the rules of thumb established by such experts.

Perceptions of Stakeholders

A final set of measures might include the perceptions of key stakeholders such as the principals of the company, the employees, customers, or suppliers or financiers. These measures would complement the others described above and would allow for a very broad-based assessment of the overall effectiveness of a new firm.

While it may often not be possible to use all of these five measures in every situation, the diversity and indeterminacy of the concept of effectiveness for a new firm makes it clearly desirable to use multiple measures of performance to accommodate the complex and volatile nature of new firms.

DISCUSSION AND CONCLUSION

While extensive research has been conducted over the past 30 years in discrete topics related to the more general phenomenon of new venture creation, there has been little attempt to synthesize or integrate these research thrusts into a systematic model. This paper has attempted such a conceptual integration, combining variables at the individual, group, organizational, and environmental levels. The process of synthesizing the disparate studies and research traditions suggested two important conclusions that have implications for the direction of future research.

First, while extensive research attention has been directed at the backgrounds, traits, and characteristics of successful entrepreneurs, there has been relatively little empirical examination of the critical *problems* faced by entrepreneurs in the process of initiating NTBOs and even less investigation into the *behaviors* needed to resolve or overcome those problems. The work of Kazanjian (1984) and Van de Ven et al. (1984) stand as two exceptions to the above statement and point the way to a relatively uncharted territory, rich with research questions. By focusing on real-time problems and corresponding behaviors (i.e., the internal dynamics of new ventures) rather than existing demographics or traits, future research might provide prescriptions that entrepreneurs can actually utilize to change their behavior to the benefit of both the individual and the fledgling company. Emphasis upon *predicting* entrepreneurial proclivity must give way to *facilitating* effective individual and group behavior in the context of the start-up process.

Second, the integration of existing research traditions points to the usefulness and importance of understanding the environmental context of new firm creation: NTBOs are not created in vacuums or homogeneous settings. Particular locational factors (e.g., the quality and attitude to technical incubator organizations, the entrepreneurial climate and business infrastructure, and the overall quality of life of the area) are extremely influential in determining the types of firms created, the rate of new firm start-up, and the chances for growth and successful development for those firms. Most work taking this approach has focused on the importance of Stanford and MIT to the development of the Silicon Valley and Route 128 high-technology agglomerations (e.g., Cooper, 1984; Roberts, 1970; Rogers & Larsen, 1984). Future research might examine the creation process in other locations using the Technology Development Cluster (TDC) concept developed in this article as the sampling frame. Assessing the individual and organizational factors of NTBOs at a variety of contrasting TDCs might enhance greatly our understanding of the importance that the external environment plays in facilitating or inhibiting the successful creation of NTBOs.

Such studies might also facilitate assessment of the impact that new firm growth and development has on the "success" of Technology Development Clusters. The complexities of evaluation effectiveness at this more aggregate level are enormous and clearly cannot be dealt with in this paper. It seems clear, however, that one might begin with concepts like new job creation, the production of exportable goods, value added, and the contribution of a given population of new technology-based organizations to the image and reputation of the TDC region.

Recently, the authors have initiated such a project aimed at examining the internal (organizational) processes and external (environmental) influences for a sample of firms in a rapidly growing TDC in Southeastern Michigan (Denison & Hart, 1985). Using the Federal Unemployment Insurance records maintained by the State of Michigan, a sample of 1500 firms has been selected and will be studied longitudinally over a five-year period.[2] While this sample was selected to be representative of the region as a whole, it was also designed to oversample new, high-growth and technology-based firms.

To the authors knowledge, this study is unique, both to the field of organizational research and economic development. There have been few studies using probability samples of new organizations, and none have been conducted using unemployment insurance records as a sampling frame, with a focus on the creation and development of new businesses. Indeed, it appears that the approach to studying NTBOs described in this paper holds great promise for synergy between related but often separated fields of application. In particular, this approach provides productive cross-fertilization among such fields as organizational development, group dynamics, urban regional planning, and economic development.

NOTES

[1] The authors are currently focusing on these problems in a research project (Denison & Hart, 1985) and another manuscript (Hart & Denison, 1985).

[2] For details on the use of unemployment insurance records as a basis for business firm sampling, see Birley (1984) and Connor et al. (1984). Evidence indicates that these records are superior to other more commonly used sources for business firm samples such as Dunn and Bradstreets and telephone directories. Unemployment insurance records are particularly good in their coverage of small, new firms--precisely the kinds of firms that other sources have the most difficulty with.

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APPENDIX B

SURVEY INSTRUMENT AND COVER LETTER

OAKLAND COUNTY BUSINESS SURVEY

INSTITUTE FOR SOCIAL RESEARCH
THE UNIVERSITY OF MICHIGAN

1817

Oakland County Economic Development Group

This survey is being sponsored by the Oakland County Economic Development Group and is being conducted by the Institute for Social Research at the University of Michigan. The purpose of this survey is to track general business activity and to identify problems that county businesses experience and issues that influence business in Oakland County. The survey asks questions about the nature of your organization, factors that you find attractive or unattractive about your location in Oakland County, your use of business services, and the type of operating problems your organization most often encounters. We also ask questions about your employees, your business history, and your perceptions and expectations of the economic outlook for Oakland County and for your business.

The survey should be completed by the president or chief operating officer of your organization. When completed, please return this questionnaire to the University of Michigan in the enclosed return envelope. If you have questions or problems with the questionnaire, please contact one of the Project Directors, Dr. Daniel Denison (313-763-0490) or Dr. Stuart Hart (313-763-5600.).

SECTION ONE: NATURE OF THE BUSINESS

A 1. Check the description which most closely characterizes your firm or facility

☐ a. Retail trade
☐ b. Wholesale trade
☐ c. Manufacturing
☐ d. Construction
☐ e. Transportation
☐ f. Communication
☐ g. Public utility
☐ h. Finance
☐ i. Insurance
☐ j. Real Estate
☐ k. Business services
☐ l. Personal services
☐ m. Health services
☐ n. Legal services
☐ o. Social services
☐ p. Educational services
☐ q. Agriculture
☐ r. Mining
☐ r. Other ____________________

A 2. How would you describe your firm or facility? (Check all that apply.)

☐ a. An independent business
☐ b. A professional corporation
☐ c. A branch or division of a multiple location company
☐ d. A single location or facility
☐ e. An independent subsidiary
☐ f. Headquarters for a multi-unit operation
☐ g. Other: ____________________

If your firm is involved in business or product services, manufacturing, fabrication, or assembly, answer these questions. If not, skip to A10.

A 3. In terms of your current sales or receipts, what are your principle products, product lines, or services?

____

A. Describe Each Major Service, Product, or Product Line	A4. Sales MIX - Percentage of 1985 Firm Income	A5. Exports - Percentage of Sales Outside Michigan	A6. What percentage of column A is AUTO-RELATED? (if appropriate)
a.	%	%	%
b.	%	%	%
c.	%	%	%
d.	%	%	%
e.	%	%	%
f. All others	%		
TOTAL (should equal)	100%		

A 7. What percentage of your purchased parts, components, or materials come from suppliers in the following locations?

___ % a. Oakland County
___ % b. Michigan (outside Oakland County)
___ % c. United States (outside Michigan)
___ % d. Outside United States

A 8. What percentage of your annual budget for 1985 was spent on research and development? ___ %

A 9. What were the sources of the money used for research and development in 1985? (Check all that apply.)

☐ a. Internally funded
☐ b. Federal grants or contracts
☐ c. State funding
☐ d. Other (specify): ____________________

A 10. For your company or facility, which of the following most accurately describes the current stage of development? (Check one.)

- ☐ a. **Prestart-up:** products still in development
- ☐ b. **Start-up:** still financed through external (equity or debt) sources; products or services ready for market
- ☐ c. **Accelerated growth:** making a profit and expanding rapidly
- ☐ d. **Steady growth:** predictable profit and moderate growth
- ☐ e. **Stable:** holding a steady share of the market
- ☐ f. **Declining:** losing customers and market shares
- ☐ g. **Other:** ______________________________

If your company is not unionized, please skip to question A12.

A 11. What percentage of your company is *unionized*? _____ %

Which labor organization(s) represent(s) workers? ____________________, ____________________

____

A 12. The questions in this section address your firm's orientation toward growth and development. Please answer each question using the following scale:

1	2	3	4	5
Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**

- ____ a. Next year, we will continue to operate pretty much as we always have.
- ____ b. Our business policies change daily as conditions change.
- ____ c. Right now, our firm is growing so fast that it's almost impossible to plan or control the way we'd like.
- ____ d. Our employees are good workers or craftspersons who appreciate the security of the job.
- ____ e. We estimate our sales for each year and prepare budgets for internal financial control.
- ____ f. For our business, control and operating methods are in writing.
- ____ g. The business environment for our company is changing very rapidly.
- ____ h. It is difficult to predict what our company portfolio (product or service lines) will look like in the future.
- ____ i. The business environment we face is very complex with many competitors or other groups and organizations that can affect us.

A 13. Does your firm currently export any of its products to foreign countries?

☐ Yes ☐ No → Go to Section Two

A 14. Has your firm used the services of a business consultant to advise you in matters relating to foreign trade?

☐ Yes ☐ No

A 15. For foreign trade advice, have you used any of the following? (Check all that apply.)

- ☐ a. U.S. Department of Commerce, International Trade Administration
- ☐ b. Michigan Department of Commerce, International Development
- ☐ c. Foreign trade consultants

SECTION TWO: NEW FIRMS

This section asks a set of questions to be answered by NEW FIRMS only (STARTED SINCE 1979). If your firm or facility was founded before 1979, please skip to SECTION THREE.

B 1. In what year was your firm or facility founded? ________ Year

B 2. When did your firm receive its first income? __________ Month ________ Year

B 3. Which one of the following best characterizes the founding of the firm?

☐ a. Created by a single entrepreneur or inventor

☐ b. Created by a team of entrepreneurs with similar functional backgrounds

☐ c. Created by a team with diverse functional backgrounds

B 4. Which one of the following best describes the origins of the firm?

☐ a. Established by an existing company

☐ b. Resulting from merger or acquisition with another firm

☐ c. Spin-off from a university (describe) ________________________________

____

☐ d. Spin-off from a corporation (describe) ________________________________

____

☐ e. Spin-off from a non-profit organization (describe) ________________________

____

B 5. Where did the founding individual(s) live prior to the firm's start-up?

☐ a. The same area where the firm is now located

☐ b. Outside the area where the firm is now but within Southeastern Michigan

☐ c. Outside of Southeastern Michigan

B 6. Did any of the founding group have previous management experience in start-up companies? (Circle one.)

1	2	3	4	5
No	Yes, some of the members had some experience	Yes, some of the members had a lot of experience	Yes, most of the members had significant experience	Yes, all of the members had experience

B 7. Did any of the founding group have previous management experience in an established company? (Circle one.)

1	2	3	4	5
No	Yes, some of the members had some experience	Yes, some of the members had a lot of experience	Yes, most of the members had significant experience	Yes, all of the members had experience

B 8. Please indicate (in thousands of dollars) any of the following financial methods that have been used by your firm or organization during the period from 1979-1985 and your estimated use of each in the coming year.

Financing Source	B8 1979-85 (thousands $)	B9 1986 (projected in thousands $)
a. Informal risk capital (e.g., personal friends, business associates)		
b. Private placements		
c. Limited partnerships		
d. Research grants or contracts (e.g., Small Business Innovation Research)		
e. Venture capital/Small Business Investment Corporations		
f. Michigan strategic/pension funds		
g. Other corporations		
h. Banks		

B 10. Thinking back to the founding of the company, what motivated the founder(s) to start the company? What were the backgrounds and areas of expertise of the founder(s) and core team? What were the two worst problems or crises that had to be overcome to launch the company?

SECTION THREE: LOCATIONAL FACTORS

This section of the survey asks a set of questions about the factors that led your firm or facility to choose your present location or that would influence you to expand at your present site. Please write the number that best fits your answer in the space at the left of each factor, using the following scale.

C 1. *How much of an incentive was each of the following factors in your firm or facility's decision to choose your present location or to expand at your present location?*

1	2	3	4	5
A strong disincentive	**A moderate disincentive**	**Neutral**	**A moderate incentive**	**A strong incentive**

___ a. Availability of technical and scientific people

___ b. Proximity to markets/customers

___ c. Local property taxes

___ d. Cultural and entertainment attractions

___ e. Availability of qualified production workers

___ f. Proximity to suppliers/vendors

___ g. Presence of economic development programs

___ h. Recreational opportunities

___ i. Access to a university or college

___ j. Local zoning and building codes

___ k. Quality of the local environment

___ l. Access to corporate laboratories

___ m. Proximity to other companies in the same or similar business

___ n. Attitude of the local community toward business and entrepreneurship

___ o. Quality of the school system

___ p. Access to government or private laboratories

___ q. Cost of space and facilities

___ r. Availability of space and facilities

___ s. Quality of health care

___ t. Availability of educational/training programs

___ u. Cost of utilities – gas

___ v. Quality of housing

___ w. Ground transportation system

___ x. Cost of utilities – electric

___ y. Convenience to good air transportation

___ z. Local wage rates

___ aa. Overall quality of the locality

___ bb. Workers' compensation

___ cc. Long-term growth potential for the area

___ dd. Proximity to owners' or employees' residence

___ ee. Availability of qualified managerial people

___ ff. Attitudes of local banking community

___ gg. Quality of roads and highways

___ hh. Single business tax

___ ii. Unemployment compensation

___ jj. Availability of funding

___ kk. Security

C 2. Please elaborate on the factors that were most important in your company's case.

SECTION FOUR: BUSINESS SERVICES

This section of the survey asks about the importance of different types of business services to your company. Please write the number that best fits your answer in the space at the left of each question, using the response scale below.

D 1. *How much of each of the following services do you anticipate your company will purchase next year (1987)?*

1	2	3	4	5
None	**A little**	**Some**	**Quite a bit**	**A great deal**

___ a. Printing and mailing services

___ b. Contract employment services

___ c. Management consulting

___ d. Accounting/tax services

___ e. Duplication services

___ f. Legal services

___ g. Personnel management assistance

___ h. Technical assistance (e.g., engineering)

___ i. Temporary employment services

___ j. Strategic planning assistance

___ k. Advertising and marketing assistance

___ l. Computing and information management services

___ m. Outplacement services

___ n. Retraining services

___ o. Other: ______________________

Are there any particular business services that you have wanted to use in the past year and have had difficulty obtaining?

____

____

D 2. *Please match the number of the firm to the service they are providing for your company this year, 1986.*

___ a. Management consulting

___ b. Accounting/tax services

___ c. Strategic planning assistance

___ d. Computing and information management services

1. Price Waterhouse
2. Ernst & Whinney
3. Touche Ross
4. Arthur Andersen
5. Plante Moran
6. Alexander Grant
7. Deloitte, Haskins & Sells
8. Arthur Young
9. Peat Marwick Mitchell
10. Seidman & Seidman
11. Provide our own in-house services

SECTION FIVE: OPERATING PROBLEMS

This part of the survey asks about the importance of different operating problems or issues to your company. Please write the number that best fits your answer in the space at the left of each question, using the response scale below.

E 1. *How much of a problem do you expect each of the following to be for your firm in the coming year?*

1	2	3	4	5	6
No problem	**Slight problem**	**Moderate problem**	**Major problem**	**Extreme problem**	**Does not apply**

____ a. Identifying new market opportunities for our products/services

____ b. Penetrating new geographic territories

____ c. Developing new products or services

____ d. Securing financial resources or backing

____ e. Attracting capable personnel

____ f. Keeping our best people

____ g. Deciding upon new or improved production or manufacturing processes

____ h. Support or capability in research and development

____ i. Anticipating what is likely to happen in the future with regard to our business

____ j. How to structure or expand a new company

____ k. Adequate facilities or space

____ l. Identifying reliable vendors or suppliers

____ m. Definition of organizational roles, responsibilities, and policies

____ n. Cost control

____ o. Internal bureaucracy

____ p. Governmental regulation and red tape

____ q. Financial systems and internal controls

____ r. Cash flow

____ s. Labor-management relations

____ t. Management information systems/office automation

____ u. Being able to continually meet demand

____ v. Making our firm more flexible and adaptive to market shifts

____ w. Increasing the capability and effectiveness of our managers

____ x. Improving the skills of company employees

____ y. Improving the firm's productivity and efficiency

____ z. Enhancing employee morale and motivation

____ aa. Business plan preparation

____ bb. Establishing an ongoing planning capability

____ cc. Foreign competition

____ dd. Domestic competition

____ ee. Export trade barriers

____ ff. Health insurance cost

____ gg. Overall state of the economy

SECTION SIX: EMPLOYMENT OUTLOOK

F 1. For each job category, please indicate the average number of full-time equivalent employees with the firm during 1985 and the number that you estimate will be with the firm during 1986 and 1987.

Job Category	F1. 1985	F2. 1986 Estimate	F3. 1987 Estimate
a. Executives/administrators/supervisors			
b. Professional staff (e.g., accountants, lawyers)			
c. Technical staff (e.g., engineers, researchers)			
d. Sales, clerical, and service workers			
e. Skilled craftspersons and machine operators			
f. Laborers, others			

F 4. What percentage of your employees have scientific or technical training? ______ %

F 5. What types of training or re-training needs does your firm foresee in the next few years?

F 6. Are there particular skills that you have had difficulty finding in the recent past? Which ones?

F 7. Are you currently unable to fill certain jobs in your firm? Please list the job titles.

SECTION SEVEN: ECONOMIC OUTLOOK

This section asks a set of questions about the future economic outlook in Oakland County. Please answer each of the following questions using the scales provided.

G 1. Do you plan to make investments in new equipment next year? (Circle one.)

1	2	3	4	5
No investments	Minor investments	Moderate investments	Significant investments	Major investments

G 2. Do you plan to expand facilities at or near your present site within the next year? (Circle one.)

1	2	3	4	5
No expansion	Minor expansion	Moderate expansion	Significant expansion	Major expansion

G 3. Do you plan to expand facilities in Oakland County within the next year? (Circle one.)

1	2	3	4	5
No expansion	Minor expansion	Moderate expansion	Significant expansion	Major expansion

G 4. Do you plan to expand facilities in Michigan, outside of Oakland County, within the next year? (Circle one.)

1	2	3	4	5
No expansion	Minor expansion	Moderate expansion	Significant expansion	Major expansion

G 5. Do you plan to expand facilities outside of Michigan within the next year? (Circle one.)

1	2	3	4	5
No expansion	Minor expansion	Moderate expansion	Significant expansion	Major expansion

G 6. Has your firm or facility ever relied on venture capital as a method of financing?

☐ 1. Yes ☐ 5. No → Go to G9

G 7. If yes, indicate below in the table what amounts have you raised via venture capital over the past few years (in thousands of dollars)?

G 8. What percentage of this venture capital was raised in Michigan?

	1980	1981	1982	1983	1984	1985	Expected 1986
G 7. Amounts raised	$	$	$	$	$	$	$
G 8. % raised in Mich.	%	%	%	%	%	%	%

G 9. Will your firm use public stock offerings as a method of financing during the coming year? (Circle one.)

1	2	3	4	5
No possibility	Slight possibility	Some possibility	Strong possibility	Almost certain

G 10. Will your firm be involved in a merger, acquisition, or buyout during this coming year? (Circle one.)

1	2	3	4	5
No possibility	Slight possibility	Some possibility	Strong possibility	Almost certain

G 11. Does your firm plan to leave Oakland County this year? (Circle one.)

1	2	3	4	5
No possibility	Slight possibility	Some possibility	Strong possibility	Almost certain

G 12. Does your firm have an Employee Stock Ownership Program (ESOP)? ____ 1. Yes ____ 5. No

G 13. Is your firm likely to establish an ESOP plan this coming year? (Circle one.)

1	2	3	4	5
No possibility	Slight possibility	Some possibility	Strong possibility	Almost certain

G 14. Will the primary markets (in total dollars) grow next year for the types of goods and services now provided by your firm? (Circle one.)

1	2	3	4	5
No, our primary markets will shrink next year	No, our primary markets will stay about the same	Yes, our primary markets will expand slightly	Yes, our primary markets will expand significantly	Yes, our primary markets will expand in a major way

G 15. Are you planning to introduce new products or services during the coming year? (Circle one.)

1	2	3	4	5
No new product introductions	Yes, a few new product introductions	Yes, moderate new product introductions	Yes, significant new product introductions	Yes, major new product introductions

G 16. Is your business facing problems that threaten it's profitability or survival? (Circle one.)

1	2	3	4	5
No, none of our problems threaten profitability or survival	Yes, some of our problems threaten profitability but not survival	Yes, some of our problems threaten both profitability and survival	Yes, some of our problems are serious to both profit and survival	Yes, many of our problems are serious to both profit and survival

G 17. What is the overall economic outlook for your business for the next 12 months? (Circle one.)

1	2	3	4	5
Poor	Fair	Good	Very good	Excellent

G 18. What is the overall economic outlook for your business for the next 5 years? (Circle one.)

1	2	3	4	5
Poor	Fair	Good	Very good	Excellent

G 19. What is the overall economic outlook for Oakland County for the next 12 months? (Circle one.)

1	2	3	4	5
Poor	Fair	Good	Very good	Excellent

G 20. What is the overall economic outlook for Oakland County for the next 5 years? (Circle one.)

1	2	3	4	5
Poor	Fair	Good	Very good	Excellent

G 21. What do you expect sales to be like for your business during the next 12 months? (Circle one.)

1	2	3	4	5
Much worse	Worse	Same as last year	Better	Much better

G 22. What do you expect prices for your products/services to be like during the next 12 months? (Circle one.)

1	2	3	4	5
Much lower	Slightly lower	Same as last year	Slightly higher	Much higher

G 23. What do you expect the cost of doing business will be like during the next 12 months? (Circle one.)

1	2	3	4	5
Much higher	Slightly higher	Same as last year	Slightly lower	Much lower

SECTION EIGHT: ORGANIZATION AND MANAGEMENT

H 1. In this section we ask a number of questions about the approach to planning, decision making, and strategic management used in your company. Please use the scale below to assess the extent to which you agree or disagree with each item. Write the number that best fits your answer in the space at the left of each item.

1	2	3	4	5
Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**

____ a. There is a clear blueprint for this company's strategy that was set some time ago and has changed very little.

____ b. Strategy, for this company, is primarily provided by the president and a few of his/her direct reports.

____ c. Our company continually adapts by making appropriate changes in its strategy based upon feedback from the marketplace.

____ d. Business planning in our company is ongoing, involving everyone in the process to some degree.

____ e. We spend as much time as possible with customers and other key stakeholders, listening to what they have to say about the company.

____ f. Our business and product planning process involves customers, suppliers, and funders.

____ g. Business and product planning in this company is largely an internal process, seeking to contain the amount of information leaking to the outside.

____ h. There is a clear and consistent set of values in this company that governs the way we do business.

____ i. This company has a characteristic "management style" and a common set of management practices.

____ j. Decisions in this company are usually made at the level where the most accurate information is available.

____ k. Most people in this company have input into the decisions that affect them.

____ l. Most people in this organization are willing to take risks.

____ m. Most people in this organization are treated pretty much the same, regardless of rank or status.

____ n. People in this organization are very dynamic and entrepreneurial.

____ o. Conflict in this organization is often suppressed rather than dealt with openly.

____ p. Specific work roles and expectations are clearly defined in this company.

____ q. Cooperation and collaboration across functional roles are actively encouraged.

____ r. People with unpopular views are given a fair hearing in this company.

____ s. Working in this company is like being part of a team.

____ t. Failure is something to be avoided in this company at all cost.

____ u. People are encouraged to experiment in this company so as to identify new, more innovative approaches or products.

____ v. Long-term potential is valued over short-term performance in this company.

____ w. The way we do things in this company is well-suited to the business we are in.

____ x. Decisions concerning business strategy are made on a consensus basis, involving people from many departments.

____ y. The chief executive of our company insists on placing his/her mark on virtually every major initiative.

I 1 Given the current stage of development of your company and its market, please assess your company's performance in the following areas by circling your response on the scale below.

	Low Performer			Moderate Performer			High Performer
Technical product development and product design	1	2	3	4	5	6	7
Sales Growth	1	2	3	4	5	6	7
Market Share	1	2	3	4	5	6	7
Profitability and return on investment	1	2	3	4	5	6	7
Overall Company Performance	1	2	3	4	5	6	7

I 2. In order to determine the factors that contribute to business success, we need some information about your sales-asset history. If appropriate, please provide estimates below. These will be STRICTLY CONFIDENTIAL.

	1980	1981	1982	1983	1984	1985	Expected 1986
I 2. Annual total sales	$	$	$	$	$	$	$
I 3. Return on investment	%	%	%	%	%	%	%

I 4. We would like to publish a listing of all the firms participating in this study. Please check the appropriate item below for your firm.

☐ 1. Yes, I give permission for the release of our firm's name and address.

☐ 2. No, I prefer not to have our firm's name on such a listing.

OAKLAND
COUNTY MICHIGAN
ECONOMIC DEVELOPMENT GROUP

Daniel T. Murphy, Oakland County Executive
Joseph D. Joachim, Director, Economic Development Group

June 20, 1986

Dear Oakland County Business Executive,

The enclosed business survey has been designed to yield a county-wide picture of current and anticipated business conditions in Oakland County.

We are especially interested in learning the needs and concerns of the business firms in the county so that we can tailor a county program to maximize our services to the business community. Additionally, we will develop an annual business outlook from the data you provide.

You can be assured that your responses will be kept in strict confidence. Results from the survey will be used to help formulate programs and policies which are most effective in fostering economic growth and job development in Oakland County.

The survey is sponsored by the Oakland County Economic Development Group and is being conducted by the Institute for Social Research at the University of Michigan.

As a participant in this project, you will receive an executive report of the survey results and summary analysis. When the summary results are sent to you, you may find it useful to compare your organization to similar businesses in the county.

We hope that you will take this opportunity and spend 30-45 minutes to give us your views. Thank you for your participation in this effort.

Sincerely,

Joseph D. Joachim

Joseph D. Joachim
Director, Economic Development Group

Executive Office Building • 1200 North Telegraph Road • Pontiac, Michigan 48053 • (313) 858-0700 • TELEX 8109004602 OAKLAND ECON

APPENDIX C

SAMPLING MEMO

FOR INTRA-UNIVERSITY CORRESPONDENCE

THE UNIVERSITY OF MICHIGAN

TO: Dan Dennison, Stuart Hart
SUBJECT: Final documentation: 1985 Oakland County Business Panel
FROM: Steve Heeringa, Sampling Section
DATE: 8 April 1987

This technical memorandum provides a description of the 1985 Oakland County Business Panel Sample. It describes the design and selection of the sample and the weight variables which should be used when the dataset of interview cases is analyzed.

I. SAMPLE DESIGN

Objective: To select a probability sample which will yield a representative panel of Oakland county businesses. The design of the sample provides researchers the flexibility to supplement the basic panel for studies of special business groups such as new businesses, businesses in specific localities, etc.. (The procedures for special supplements are not described in this memo.)

Study Population: The study population includes all businesses currently operating at or from a location in Oakland County. Farms, railroad operations, and businesses with payroll of $1000 or less per quarter are not captured by the ES-202 sample frame and are excluded from the study population. Government organizations are also excluded from the study population.

Sample frame: The sample frame is the 1984 fourth quarter ES-202 file as compiled by the Michigan Employment Security Commission (MESC). In addition, a special longitudinal version of the MESC data base developed by the ISR Sampling Section was used to identify businesses belonging to a special stratum of "high growth" firms.

Sample stratification: The sample for the Oakland County business panel has been selected using a stratified, probability proportionate to size (PPS) design. The sampling design includes five explicit strata and the separate strata were sampled at different rates. Companies with SIC codes of 2000-5199, 6000-6799, 7300-7399, 8100-8199, 8600-8699, 8900-8999 (Stratum 1) and fewer than 60 employees were sampled at a rate of one selection for each 60 employees. Companies wih SIC codes of 0100-1799, 5200-5999, 7000-7299, 7400-8099, 8200-8499 (Stratum 2) and fewer than 240 employees were sampled at a rate of one selection for each 240 employees. Businesses in the Stratum 1 SIC code range but with average fourth quarter 1984 employment of 60 or more persons were assigned to Stratum 3 (the "self-representing" stratum) and included in the sample with certainty. Likewise, businesses in the Stratum 2 SIC code range were assigned to Stratum 3 and sampled with certainty if their average fourth quarter 1984 employment was at least 240. Oakland County-based headquarters of multi-establishment Michigan businesses were assigned to Stratum 5 and were also included in the sample with certainty. Stratum 4 contains the "high growth" firms which were included in the panel with certainty.

Sampling rates: The self-representing (SR) firms in Strata 3, 4 and 5 are included in the panel with probability = 1.0. Under the PPS sampling procedure, the selection probability for each nonself-representing (NSR) business is equal to its employment measure of size divided by 60 (the PPS selection interval) for Stratum 1 or its employment measure of size divided by 240 for Stratum 2 businesses.

Selection procedure: Prior to selection, each eligible Oakland County business in Strata 1 and 2 was assigned a measure of size equal to the average of its employment for October, November and December 1984. The records in the sample frame were then ordered by two-digit SIC group and by size category within two-digit group. Following this implicit stratification step, the measures of size for individual firms were cumulated and a systematic PPS sample of the nonself-representing Oakland county firms was selected from the ordered ES-202 data file.

Sample size and replication features: To achieve completed interviews with a panel of Oakland County businesses, the initial sample size was set at n=2562 firms. To insure efficient control over the survey field work, Sampling Section divided the total sample into eight subsamples or "replicates". The replication feature of the sample is described below.

Replicate Number	Replicate Description	Sample Cases
1	NSR 1/5 subsample	357
2	NSR 1/5 subsample	356
3	NSR 1/5 subsample	354
4	NSR 1/5 subsample	355
5	NSR 1/10 subsample	178
6	NSR 1/10 subsample	177
7	Self-representing	746
8	Special headquarters	38

Of the 2562 sample firms, 38 were special headquarters locations of multi-establisnment firms which operate in Michigan. Attachment 1 contains a list of these special headquarters records. To separate these headquarters units from the remainder of the sample, the special headquarters records were assigned to sample replicate eight (8).

Sample replicate seven (7) includes all businesses which have been designated as self-representing selections (Stratum 3). The designated SR selections exclude the special headquarters locations assigned to replicate eight. In replicate seven, there are a total of n = 746 self-representing selections.

The 1778 nonself-representing sample firms selected from Strata 1 and 2 were randomly assigned to six replicates. Replicates 1, 2, 3 and 4 are representative one-fifth samples of the total set of NSR selections. Replicates 5 and 6 are one-half divisions of the remaining one-fifth subsample of NSR sample businesses.

In addition to the basic sample described above, a special suppplement of high growth firms was identified. This supplement was matched with the original sample to flag high growth firms which had already been selected for the sample. Of the 793 high growth firms identified, 564 had already been selected for the sample and 229 represented new or supplemental selections. For purposes of sample control and to distinguish them in analysis, these 229 additional high growth firms were assigned to Replicate 9. All 793 of the high growth firms are considered certainty (self-representing) selections. In the process of merging the high growth supplement with the basic sample, 27 duplicate Employer ID/SIC combinations were deleted from the basic sample. These were Master and Detail records for the same firm. These deletions reduced the Replicate 7 (self-representing) count to 729 and the Replicate 8 (headquarters) count to 29. A list of the duplicates (Attachment 2) is attached. With the addition of 229 high growth companies and the deletion of 27 duplicate records for companies, the total Oakland County sample was 2,764 records.

Sample Distributions

Attachment 3 is a printout showing the distribution of the sample by business employment size category and broad industry category (SIC). The printout contains tables showing the sample distributions for the following categories of sample businesses: 1) All non-headquarter firms (replicates 1-7,9); 2) nonself-representing sample businesses (replicates 1-6); 3) self-representing sample businesses (replicates 7,9); and 4) special headquarters (replicate 8). The tables come in pairs. The first table is weighted by sample businesses' employment, the second reflects unweighted counts of sample business units.

II. WEIGHTS FOR OAKLAND BUSINESS PANEL DATA ANALYSIS

In the analysis of the Oakland County Business Panel data, sample-based inference will take two forms: employment-based and firm-level. Unlike general population studies where the sampled units -- households -- are each assigned roughly the same importance in the survey data analysis, businesses are rarely viewed as "equal". Instead, the analyst chooses an inferential view in which the surveyed businesses take on "importance" proportionate to their size (in employment or possibly production or sales). For surveys where most analyses will assign each business a measure of importance based on its size, the most efficient sampling plan is a PPS design of the type used to select the Oakland County Business Panel.

The second form of inference is to a population of firms where each business is assumed to have equal importance. Firm or "group" level analysis of this type is most meaningful when conducted on restricted classes of businesses which are similar in size or resemble one another in other ways. The inappropriateness of unrestricted firm-level analysis can be seen in the extreme example where the analyst treats a Ford Motor Company plant and a small tool and die shop as equal in importance. A PPS sample design does not preclude firm level analysis, but it does necessitate the use of a weight factor which is inversely proportionate to the employment-based probability by which sample firms were actually selected.

A very informative discussion on the distinction between employment-based (element level) or firm-level (group level) analysis of survey data can be found in Kish (1965), "Sampling organizations and groups of unequal size", American Sociological Review, Vol 30., No. 4. For our purposes here we might cite an example of estimating the proportion by which Oakland County employment is expected to grow in the next two years (employment-based analysis) and the the proportion of firms which indicate that they expect to grow in the next two years (firm-level analysis).

The two subsections that follow describe the weight factors that are required for both types of analysis. Researchers who plan to use Oakland County Business Panel data set should read both sections carefully to understand the distinction between the two general forms of analysis and the weight factors that are appropriate to each.

WEIGHTED "EMPLOYMENT-BASED" DATA ANALYSIS

In its simplest form, the PPS sample of firms would require no selection weights for employment-based analyses of the business survey data. However, since the larger and "high growth" firms in Oakland County were sampled with certainty and Stratum 2 nonself-representing firms were deliberately undersampled, the PPS sample of firms included in the Oakland County Business Panel is not strictly self-weighting. Consequently, a selection weight factor is required for unbiased analysis of the survey data.

Table 1 below presents the value of the selection weight which should be used in all employment-based analysis of data from the Oakland County Business Panel. Use of this weight implies that all inferences will implicitly reflect a measure of importance for business characteristics, attitudes and expectations that is proportionate to their employment size.

Table 1: Selection weights for employment-based analysis.(W1)

Stratum	Replicate	W1 Selection Weight*
1	1-6 (NSR)	60
2	1-6 (NSR)	240
3	7 (SR)	Employment MOS
4	9 (High Growth)**	Employment MOS
5	8 (Headquarters)	Employment MOS

* The Selection weight for nonself-representing companies is the inverse of the sampling rate.

** High Growth companies were selected with certainty. This group includes not only the companies in Replicate 9, but also the companies in other replicates which are flagged as high growth companies. Only companies in the first group of SIC codes (the Stratum 1 group) were considered for the high growth supplement.

The selection weight factor for employment-based analysis, W1, compensates for the differing sampling rates used to select firms from the five sample design strata. In addition to the selection weights, employment-based nonresponse adjustment weights were also calculated for 24 SIC by sample stratum classes. These nonresponse weights rates are in effect post-stratification factors which are intended to correct the employment representation in the interviewed sample for nonresponse. In many classes of the sample, the low response rate to the survey raises a serious concern over the issue of nonresponse bias. Although it is unrealistic to assume that the post-stratification factor will completely erase any nonresponse biases which are present in the interview data set, a correction of the form proposed here will address the more systematic sources of bias which arise from differential response rates in different SIC and firm size groups. Table 2 defines the adjustment factor, W2, which is computed as the ratio of known total employment for an adjustment cell to the total employment for that cell estimated from interview cases.

For the self-representing stratum, separate nonresponse adjustment factors were calculated for the set of very large firms in several industry groups. Within Manufacturing (SIC codes 2000-3999) and Transportation, Communication and Utilities (SIC codes 4000-4999), firms with 750 or more employees were given a separate nonresponse adjustment factor. Firms with 2400 or more employees in the Retail (SIC codes 5200-5999) or Services (SIC codes 7000-8999) groups were also given separate nonresponse adjustment weights. This grouping by size was used so that interviewed firms would compensate for non-interviewed firms which they more closely resembled. These separate nonresponse adjustment factors are shown in Table 2.

Because the Oakland county sample will be used to make estimates about the current set of Oakland county businesses, and because employment has grown at different rates among broad industry groups between 1984 and 1986 a third weighting factor, W3, the 1986 post-stratification weight is also used. This factor weights the 1984-4th quarter employment totals up to the 1986-2nd quarter totals for nine industry groups. These 1986-2nd quarter employment totals were obtained from MESC and were the most current Oakland county statistics available. Table 3 shows' the 1986-2nd quarter employment totals, the interview totals weighted by the product of W1 and W2 and the 1986 post-stratification factor, W3.

The appropriate weighting factor for employment-based analysis of the survey data should be be a composite value computed as the product of the selection weight, W1, the nonreponse adjustment, W2, and the 1986 post-stratification weight, W3, specified in Tables 1, 2 and 3. In using this composite weight, the analyst will be applying a correction for unequal selection rates within sample design strata, an employment-based adjustment for nonreponse, and post-stratification to the actual employment distribution for broad industry groups in 1986.

Composite weight = W* = W1 x W2 x W3

Table 2: Employment-Based Nonresponse Adjustment Factors (W2)

Sample Type/ SIC Group	Employment 1984-4		W2 Nonresponse Adj. Factor
	Frame	Interview Cases*	
NSR - Group 1 SIC's			
2000-3999	17,192	4,320	3.98
4000-4999	2,740	360	7.61
5000-5199	15,231	2,940	5.18
6000-6999	8,884	2,100	4.23
7000-8999	18,605	4,680	3.98
NSR - Group 2 SIC's			
0001-1999	1,886	480	3.93
1000-1499	312	---	---
1500-1799	13,566	3,120	4.35
5200-5999	56,507	7,200	7.85
7000-8999	40,225	9,840	4.09
SR - Groups 1,2			
0100-0999	761	761	1.00
1000-1499	---	---	---
1500-1799	1,181	287	4.11
2000-3999			
firms <750	19,637	4,907	4.00
firms ≥750	32,424	15,574	2.08
4000-4999			
firms <750	4,691	1,305	3.59
firms ≥750	7,493	1,155	6.49
5000-5199	8,501	1,917	4.43
5200-5999			
firms <2400	33,405	6,072	5.50
firms ≥2400	10,540	10,540	1.00
6000-6999	11,246	4,667	2.41
7000-8999			
firms <2400	50,109	26,483	1.89
firms ≥2400	16,818	8,435	1.99
High Growth - Group 1			
2000-3999	36,466	7,773	4.69
4000-4999	4,561	1,292	3.53
5000-5199	8,601	1,438	5.98
6000-6999	9,599	2,719	3.53
7000-8999	21,151	4,042	5.23

* The employment total for the interview cases incorporates the selection weight.

Table 3: EMPLOYMENT BASED 1986 POST-STRATIFICATION WEIGHTS

SIC Group		1986-2nd quarter	Interview Total*	W3 1986 Post-Stratification Weight
Agriculture	0100-0999	4,468	2,647	1.69
Mining	1000-1499	404	--	--
Construction	1500-1799	21,140	14,752	1.43
Manufacturing	2000-3999	112,856	109,682	1.03
Transportation, Communication, Utilities	4000-4999	16,925	19,481	0.87
Wholesale	5000-5199	34,381	32,321	1.06
Retail	5200-5999	104,959	100,456	1.04
Finance, Insurance, Real Estate	6000-6999	34,269	30,843	1.11
Services	7000-8999	148,004	146,850	1.01
Total		477,406	457,032	

* The employment total for the interview cases incorporates the selection weight and the nonresponse adjustment weight.

WEIGHTED "FIRM-LEVEL" ANALYSIS

For analyses of subgroup data in which the analyst chooses to assign equal importance to each firm, Tables 4-6 provide the correct weighting factors. Note that the selection weight component for firm-level analysis is equal to the original selection weight, W1, divided by the sample firm's employment MOS (average monthly employment in the fourth quarter of 1984).

Table 4: Selection Weights for Firm Level Analysis.

Stratum	Replicate	W4 Selection Weight**
1	1-6 (NSR)	60/employment MOS
2	1-6 (NSR)	240/employment MOS
3	7 (SR)	1.0
4	9 (High Growth)*	1.0
5	8 (Headquarters)	1.0

* High Growth companies were selected with certainty. This group includes not only the companies in Replicate 9, but also the companies in other replicates which are flagged as high growth companies.

** For Strata 1 and 2, the maximum firm-level weight allowed was 30.0. Firm-level weights for firms which were above this limit were reduced to 30.0.

Table 5 shows the firm-level nonresponse adjustment weights, W5. These weights are used to compensate for nonresponse in 24 SIC by sample stratum classes. These are the same 24 cells which are defined in Table 2. The nonresponse adjustment weights are obtained by dividing the known number of firms in each cell of the 1984-4th quarter frame by the interview cases.

In addition to the firm-level nonresponse adjustment factor, W5, a firm-level 1986 post-stratification factor, W6, was also calculated using 1986-2nd quarter counts of firms obtained from MESC. Table 6 shows the number of firms in each of the nine industry categories, the number of interview cases weighted by W4*W5 and the 1986 post-stratification factor, W6.

For firm-level analyses, a weight which is the product of the firm-level selection weight, the firm-level nonresponse adjustment factor, and the firm-level 1986 post-stratification weight should be used. Attachment 4 is a listing of the interview cases with the employee-based and firm-level weights together with a set of weighted tables showing frequencies for SIC group by stratum for the dataset.

Table 5: Firm Based Nonresponse Adjustment Factors

Sample Type/ SIC Group	Number of Firms Frame	1984-4 Interview Cases*	W5 Nonresponse Adj. Factor
NSR - Group 1 SIC's			
2000-3999	1,399	266	5.26
4000-4999	364	35	10.40
5000-5199	2,104	285	7.38
6000-6999	1,566	289	5.42
7000-8999	3,056	579	5.28
NSR - Group 2 SIC's			
0100-0999	311	33	9.42
1000-1499	21	--	--
1500-1799	1,626	140	11.61
5200-5999	3,694	336	10.99
7000-8999	4,218	650	6.49
SR - Groups 1,2			
0100-0999	1	1	1.00
1000-1499	--	--	--
1500-1799	4	1	4.00
2000-3999	128	32	4.00
4000-4999	17	8	2.13
5000-5199	59	14	4.21
5200-5999	68	15	4.53
6000-6999	51	18	2.83
7000-8999	122	56	2.18
High Growth - Group 1			
2000-3999	282	73	3.86
4000-4999	37	11	3.36
5000-5199	137	29	4.72
6000-6999	93	19	4.89
7000-8999	244	56	4.36

* The firm-level total for the interview cases incorporates the firm-level selection weight, W4.

Table 6: Firm Based 1986 Post-Stratification Weights

SIC Group		1986-2nd Quarter	Interview Total*	1986 Post-Stratification Weight
Agriculture	0100-0999	400	311	1.29
Mining	1000-1499	27	--	--
Construction	1500-1799	2,291	1,544	1.48
Manufacturing	2000-3999	2,210	1,811	1.22
Transportation, Communication, Utilities	4000-4999	501	422	1.19
Wholesale	5000-5199	2,862	2,302	1.24
Retail	5200-5999	4,159	3,390	1.23
Finance, Insurance, Real Estate	6000-6999	2,166	1,710	1.27
Services	7000-8999	9,903	7,141	1.39
Total		24,519	18,630	

* The interview total incorporates the firm-level selection weight, W4, and the firm-level nonresponse adjustment factor, W5.

APPENDIX D

LIST OF ZIP CODES IN I-696 CORRIDOR

Oakland County

Zip Codes in the I-696 Corridor

48018
48024
48030
48034
48050
48067
48069
48070
48071
48072
48073
48075
48076
48220
48237

APPENDIX E

ANALYZING EMPLOYMENT TRENDS FROM MESC DATA

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APPENDIX E

Analyzing Employment Trends from MESC Data

Another important source of information about the employment outlook comes not from the survey, but from the State employment records. This section examines the MESC records to identify those sectors of the economy that have experienced the most significant gains or losses in employment over the last several years. To accomplish this, the longitudinal MESC records developed by the Sampling Section at ISR were used to assess change in employment at the three digit SIC code level over the 1979-1984 period using fourth quarter data for each of those years. Five different screening criteria were used in this analysis:

1. Net Employment Growth; those SIC codes with the greatest proportional and absolute increase in employment over the period.
2. Net Employment Decline; those SIC codes with the greatest proportional and absolute decrease in employment over the period.
3. New Jobs Created; those SIC codes with the greatest proportional and absolute increases in new jobs, regardless of numbers of jobs lost in those codes.
4. Old Jobs Eliminated; those SIC codes with the greatest proportional and absolute loss of jobs, regardless of numbers of jobs created in those codes.
5. Job Flux; those SIC codes with the greatest proportional and absolute number of new jobs added plus old jobs lost.

For all five analyses, the top 10% of the SIC codes were identified. Tables E.1 - E.5 contain the results of these analyses. Net employment growth and decline are important to understand because they provide a "bottom line" understanding of employment in the County-- they identify those sectors and industries that are really contributing to or subtracting from the job pool. Table E.1 reveals that *in terms of net employment growth, the service industries dominate in the County.* The fastest growing (though still small) sectors included Communication Services (+1,378%), Medical Service and Health Insurance (+543%), and Social Services (+954%). Looking at the absolute increase in net employment, it can be seen that Miscellaneous Business Services (+5,887), Eating and Drinking Establishments

Table E.1. Net Employment Growth, 1979-1984:
SICs with Greatest Proportional Increase in Employment
Top Ten Percent

SIC	Industry	Number of Firms	Number of Employees		Employment Change	Percent
			1979	1984		
272	Periodicals	14	40	178	+138	+345
274	Misc. Publishing	11	142	1,013	+871	+613
285	Paint Products	11	164	383	+219	+134
289	Misc. Chemical Products	19	261	665	+404	+155
364	Electric Lighting and Wiring	16	142	443	+301	+212
367	Electronic Components	36	751	1,510	+759	+101
422	Public Warehousing	37	115	303	+188	+164
458	Air Transportation Services	19	79	184	+105	+133
489	Communication Services	30	47	695	+648	+1,378
556	Recreational Trailer Dealers	11	30	80	+50	+167
563	Women's Accessories	31	70	144	+74	+106
621	Security Brokers and Dealers	49	615	1,281	+666	+108
628	Security and Commodity Services	41	82	268	+186	+227
632	Medical Service and Health Ins.	12	54	347	+293	+543
671	Holding Offices	19	40	119	+79	+198
673	Trusts	10	6	14	+8	+133
729	Misc. Personal Services	101	691	1,820	+1,129	+163
808	Outpatient Health Care	41	258	618	+360	+140
809	Health and Allied Services	29	118	268	+150	+127
833	Social Services	19	69	727	+658	+954
836	Residential Care	87	572	1,435	+863	+151

SICs with Greatest Absolute Increase in Employment
Top Ten Percent

SIC	Industry	Number of Firms	Number of Employees		Employment Change	Percent
			1979	1984		
274	Miscellaneous Publishing	11	142	1,013	+871	+613
307	Miscellaneous Plastics	130	3,434	4,502	+1,068	+31
367	Electronic Components	36	751	1,510	+759	+101
481	Telephone Communication	12	6,995	8,056	+1,061	+15
508	Wh. Machinery, Equip, Suppl.	1,051	12,391	13,840	+1,449	+12
514	Wh. Groceries & Related Prod.	159	1,600	2,412	+812	+51
554	Gasoline Service Stations	448	2,211	3,758	+1,547	+70
581	Eating and Drinking Places	1,712	29,839	35,709	+5,870	+20
591	Drug and Proprietary Stores	225	3,512	4,470	+958	+27
651	Real Estate Op'rs. & Lessors	858	3,465	4,342	+877	+25
729	Miscel. Personal Services	101	691	1,820	+1,129	+163
736	Personnel Supply Services	191	4,673	5,705	+1,032	+22
737	Computer & Data Proc. Serv.	315	2,914	4,502	+1,588	+54
739	Misc. Business Services	1,293	9,017	14,904	+5,887	+65
801	Offices of Physicians	1,498	5,341	7,222	+1,881	+35
805	Nursing & Personal Care Fac.	66	5,226	9,659	+4,433	+85
806	Hospitals	19	16,536	18,827	+2,291	+14
811	Legal Services	1,171	3,058	4,750	+1,692	+55
836	Residential Care	87	572	1,435	+863	+151
891	Eng'g. & Architect. Services	591	6,957	11,074	4,117	+59

(+5,870), Nursing and Personal Care Facilities (+4,433), and Engineering and Architecture Services (+4,117) were the greatest net contributors of jobs in the County during the 1979-84 period.

The situation for nèt employment decline looks very different; the results are presented in Table E.2. While selected parts of the construction and retail sectors experienced significant decline (e.g. building contractors, electrical work, special trades, hotels, and department stores) *at the center of net job decline was the manufacturing sector.* Metalworking machinery lost 2,523 net jobs with fabricated structural metal (-1.254) and general industrial machinery (-1,065) not far behind. Elementary and secondary schools were the other big losers in terms of absolute job decline, losing 4,608. Thus, it appears that structural shifts are occuring in the manufacturing sector providing ripple effects to the associated sectors. The downturn in the business cycle during this period also undoubtedly took its toll, particularly on the construction and retail sectors. The combination of the above two events severely impeded local governments' ability to raise revenue contributing to the decline in education. Noticeably absent, however, were job declines in the business or personal service sectors.

The next three analyses (Tables E.3 - E.5) provide a different view of economic change in the County. Focusing on new jobs created, old jobs lost, and total job flux centers attention on those businesses and industries in transition -- those which may not, at present, be major net job creators or losers, but which are experiencing significant job turnover. In the final analysis, it is probably those industries which are in transition (rather than those that are doing extremely well or very poorly) on which the County should focus its programs and policies for economic development.

Looking at new jobs created (Table E.3), it is apparent that many of those sectors which were high on the list of net job creation were also among those creating the most new jobs. Communication services (+1,479%), social services (+1,006%), publishing (+680%), and medical services and health insurance (+552%) top this list in proportional increases while eating and drinking establishments (+19,709), motor vehicles and equipment (+11,465), and business services (+10,321) added the most new jobs.

A wide range of businesses lost 90-100% of existing jobs during the 1979-84 period. These results are presented in Table E.4. Communication services (-100%), and trusts (-100%) were the greatest proportional losers. Office and computing machines (-98%) also lost an appreciable number of jobs (-1,476). New jobs may, of course, have been created within these industries over this time period so that the

Table E.2. Net Employment Decline, 1979-1984:
SICs with Greatest Proportional Decrease in Employment
Top Ten Percent

SIC	Industry	Number of Firms	Number of Employees		Employment Change	Percent
			1979	1984		
152	Building Contractors	901	4,817	1,957	-2,860	-59
153	Operative Builders	26	104	38	-66	-63
172	Painting, Paperhanging	162	530	205	-325	-61
174	Masonry, Plastering	311	1,733	839	-894	-52
175	Carpentering	270	1,570	779	-791	-50
249	Misc. Wood Products	16	81	33	-48	-59
366	Communication Equipment	13	515	160	-355	-69
396	Costume Jewelry	19	58	20	-38	-65
411	Local Transportation	17	274	119	-155	-56
412	Taxicabs	15	119	11	-108	-91
504	Wh. Sporting Goods	41	1,055	470	-585	-55
527	Rt. Mobile Home Dealers	20	187	52	-135	-72
539	Rt. General Merchandise	17	116	49	-67	-58
545	Dairy Products Stores	16	358	17	-341	-95
549	Misc. Food Stores	24	260	112	-148	-57
559	Automotive Dealers	13	97	47	-50	-51
598	Fuel & Ice Dealers	16	131	60	-71	-54
679	Miscellaneous Investing	34	93	45	-48	-52
703	Camps & Trailer Parks	32	95	49	-46	-48
794	Commercial Sports	44	1,139	317	-822	-72
829	Schools & Educat. Services	58	731	360	-371	-51

SICs with Greatest Absolute Decrease in Employment
Top Ten Percent

SIC	Industry	Number of Firms	Number of Employees		Employment Change	Percent
			1979	1984		
152	Building Contractors	901	4,817	1,957	-2,860	-59
161	Highway & Street Constr.	116	1,443	1,026	-417	-29
162	Heavy Construction (ex. hiwy.)	109	1,411	873	-538	-38
171	Plumbing, Heating, Air Cond.	423	3,198	2,281	-917	-29
173	Electrical Work	366	3,041	1,811	-1,230	-40
174	Masonry, Plastering	311	1,733	839	-894	-52
175	Carpentering, Flooring	270	1,570	779	-791	-50
179	Misc. Special Trade Contrac.	348	3,298	2,214	-1,084	-33
327	Concrete, Gypsum, Plaster	46	1,029	632	-397	-38
344	Fabricated Structural Metal	121	3,002	1,718	-1,254	-42
354	Metalworking Machinery	603	15,253	12,730	-2,523	-16
356	General Industrial Machinery	102	4,031	2,996	-1,065	-26
357	Office & Computing Machines	17	1,507	794	-713	-47
504	Wh. Sporting Goods, Toys	41	1,055	470	-585	-55
531	Department Stores	35	9,437	8,189	-1,248	-13
633	Fire, Marine, Casualty Ins.	52	3,703	3,006	-697	-19
653	Real Estate Agents, Mgrs.	647	3,067	2,659	-408	-13
701	Hotels, Motels	96	3,069	1,833	-1,236	-40
793	Bowling & Billiard Establ.	67	1,428	1,047	-381	-27
794	Commercial Sports	44	1,139	317	-822	-72
821	Element. & Secondary Schools	56	26,887	22,279	-4,608	-17

Table E.3. New Jobs Created, 1979-1984:
SICs with Greatest Proportional Increase in New Jobs
Top Ten Percent

SIC	Industry	Number of Firms	Number of Employees		New Jobs Created	Percent
			1979	1984		
251	Household Furniture	16	87	161	+134	+154
272	Periodicals	14	40	178	+173	+432
274	Miscell. Publishing	11	142	1,013	+966	+680
285	Paint & Allied Products	11	164	383	+292	+178
289	Misc. Chemical	19	261	665	+517	+198
364	Electrical Lighting Equip.	16	142	443	+379	+267
422	Public Warehousing	37	115	303	+257	+224
458	Air Transportation Services	19	79	184	+148	+187
489	Communication Services, nec.	30	47	695	+695	+1,479
556	Recreational Trailer Dealers	11	30	80	+67	+223
615	Business Credit Institutions	38	96	144	+137	+143
628	Security & Commodity Services	41	82	268	+241	+294
632	Medical Serv. & Health Ins.	12	54	347	+298	+552
671	Holding Offices	19	40	119	+94	+235
673	Trusts	10	6	14	+14	+233
729	Misc. Personal Services	101	691	1,820	+1,433	+209
808	Outpatient Care	41	258	618	+428	+166
809	Health & Allied Services, nec.	29	118	268	+184	+156
833	Social Services	19	69	727	+694	+1,006
836	Residential Care	87	572	1,435	+964	+168
899	Misc. Services, nec.	63	108	208	+171	+158

SICs with Greatest Absolute Increase in New Jobs
Top Ten Percent

SIC	Industry	Number of Firms	Number of Employees		New Jobs Created	Percent
			1979	1984		
307	Miscellaneous Plastics	130	3,434	4,502	+2,869	+84
354	Metalworking Machinery	603	15,253	12,730	+6,315	+41
371	Motor Vehic. & Equipment	109	44,550	44,961	+11,465	+26
481	Telephone Communication	12	6,995	8,056	+2,497	+36
508	Wh: Machin., Equip., & Suppl.	1,051	12,391	13,840	+6,563	+53
531	Department Stores	35	9,437	8,189	+2,507	+27
554	Gasoline Service Stations	448	2,211	3,758	+2,714	+123
581	Eating & Drinking Places	1,712	29,839	35,709	+19,709	+66
591	Drug & Proprietary Stores	225	3,512	4,470	+2,895	+82
594	Miscell. Shopping Goods	658	5,178	5,798	+2,614	+50
602	Commerc./Stock Sav'gs. Banks	40	5,234	5,453	+2,379	+46
651	Real Estate Op'rs, Lessors	858	3,465	4,342	+2,842	+82
736	Personnel Supply Services	191	4,673	5,705	+3,204	+69
737	Computer/Data Proc. Services	315	2,914	4,502	+3,340	+115
739	Miscell. Business Services	1,293	9,017	14,904	+10,321	+114
801	Offices of Physicians	1,498	5,341	7,222	+3,649	+68
805	Nursing/Personal Care Facil.	66	5,226	9,659	+6,433	+123
806	Hospitals	19	16,536	18,827	+6,209	+38
811	Legal Services	1,171	3,058	4,750	+2,853	+93
891	Eng'g./Architect. Services.	591	6,957	11,074	+6,680	+96

Table E.4. Old Jobs Eliminated, 1979-1984:
SICs with Greatest Proportional Loss of Old Jobs
Top Ten Percent

SIC	Industry	Number of Firms	Number of Employees		Old Jobs Lost	Percent
			1979	1984		
249	Misc. Wood Products	16	81	33	-71	-88
272	Periodicals	14	40	178	-35	-88
342	Cutlery, Hand Tools, Hardware	31	245	187	-220	-90
357	Office & Computing Machines	17	1,507	794	-1,476	-98
366	Communication Equipment	13	515	160	-440	-85
369	Misc. Electrical Equipment	13	663	410	-554	-84
396	Costume Jewelry, Notions	19	58	20	-55	-95
399	Miscell. Manufactures	36	337	482	-299	-89
411	Local/Suburban Transportation	17	274	119	-254	-93
412	Taxicabs	15	119	11	-114	-96
489	Communication Services, nec.	30	47	695	-47	-100
544	Candy & Nut Stores	27	177	118	-165	-93
545	Dairy Products Stores	16	358	17	-351	-98
559	Automotive Dealers, nec.	13	97	47	-86	-89
615	Business Credit Institutions	38	96	144	-89	-93
673	Trusts	10	6	14	-6	-100
679	Misc. Investing	34	93	45	-88	-95
781	Motion Picture Prod. & Serv.	58	343	282	-298	-87
791	Dance Halls, Studios, Schools	40	129	114	-114	-88
794	Commercial Sports	44	1,139	317	-1,044	-92

SICs with Greatest Absolute Loss of Old Jobs
Top Ten Percent

SIC	Industry	Number of Firms	Number of Employees		Old Jobs Lost	Percent
			1979	1984		
152	Building Contractors	901	4,817	1,957	-3,950	-82
173	Electrical Work	366	3,041	1,811	-2,033	-67
179	Misc. Spec. Trade Contractors	348	3,298	2,214	-1,945	-59
354	Metalworking Machinery	603	15,253	12,730	-8,838	-58
356	General Industrial Machinery	102	4,031	2,996	-2,739	-68
371	Motor Vehicles & Equipment	109	44,550	44,961	-11,054	-25
508	Wh: Machinery, Equip., Suppl.	1,051	12,391	13,840	-5,114	-41
531	Department Stores	35	9,437	8,189	-3,755	-40
581	Eating & Drinking Places	1,712	29,839	35,709	-13,839	-46
591	Drug & Proprietary Stores	225	3,512	4,470	-1,937	-55
594	Misc. Shopping Goods Stores	658	5,178	5,798	-1,994	-38
602	Commercial/Stock Savings Banks	40	5,234	5,453	-2,160	-41
651	Real Estate Operators/Lessors	858	3,465	4,342	-1,965	-57
701	Hotels and Motels	96	3,069	1,833	-2,326	-76
736	Personnel Supply Services	191	4,673	5,705	-2,172	-46
739	Miscell. Business Services	1,293	9,017	14,904	-4,434	-49
805	Nursing/Personal Care Facil.	66	5,226	9,659	-2,010	-38
806	Hospitals	19	16,536	18,827	-3,918	-24
821	Elem. & Secondary Schools	56	26,887	22,279	-5,567	-21
891	Eng'g. & Architect. Services	591	6,957	11,074	-2,563	-37

Table E.5. Job Flux, 1979-1984:
SICs with Greatest Proportional Flux -- New Jobs Added + Old Jobs Eliminated
Top Ten Percent

SIC	Industry	Number of Firms	Number of Employees 1979	1984	Flux: Growth +Decline	Percent
251	Household Furniture	16	87	161	194	223
272	Periodicals	14	40	178	208	520
274	Misc. Publishing	11	142	1,013	1,061	747
285	Paints & Allied Products	11	164	383	365	223
289	Misc. Chemical Products	19	261	665	630	241
364	Electric Lighting Equip.	16	142	443	457	322
399	Miscellaneous Manufactures	36	337	482	743	220
422	Public Warehousing	37	115	303	326	284
458	Air Transportation Services	19	79	184	191	242
489	Communication Services, nec.	30	47	695	742	1,579
556	Recreational Trailer Dealers	11	30	80	84	280
615	Business Credit Institutions	38	96	144	226	235
628	Security & Commodity Services	41	82	268	296	361
632	Medical Services/Health Ins.	12	54	347	303	561
671	Holding Offices	19	40	119	109	272
673	Trusts	10	6	14	20	333
729	Miscel. Personal Services	101	691	1,820	1,757	254
808	Outpatient Care Facilities	41	258	618	496	192
824	Corresp. & Vocational Schools	22	178	300	334	188
833	Social Services	19	69	727	730	1,058
899	Services, nec.	63	108	208	242	224

SICs with Greatest Absolute Flux -- New Jobs Added + Old Jobs Eliminated
Top Ten Percent

SIC	Industry	Number of Firms	Number of Employees 1979	1984	Flux: Growth +Decline	Percent
152	Building Contractors	901	4,817	1,957	5,040	105
307	Miscellaneous Plastics	130	3,434	4,562	4,670	136
354	Metalworking Machinery	603	15,253	12,730	15,153	99
371	Motor Vehic. & Equipment	109	44,550	44,961	22,519	50
508	Wh: Machinery, Equip., Suppl.	1,051	12,391	13,840	11,677	94
531	Department Stores	35	9,437	8,189	6,262	66
581	Eating & Drinking Places	1,712	29,839	35,709	33,548	112
591	Drug & Proprietary Stores	225	3,512	4,470	4,832	138
594	Misc. Shopping Goods Stores	658	5,178	5,798	4,608	89
602	Commercial/Stock Savings Banks	40	5,234	5,453	4,539	87
651	Real Estate Oper's & Lessors	858	3,465	4,342	4,807	139
736	Personnel Supply Services	191	4,673	5,705	5,376	115
737	Computer/Data Proc. Services	315	2,914	4,502	5,092	175
739	Miscell. Business Services	1,293	9,017	14,904	14,755	164
801	Offices of Physicians	1,498	5,341	7,222	5,417	101
805	Nursing/Personal Care Facil.	66	5,226	9,659	8,453	162
806	Hospitals	19	16,536	18,827	10,127	61
821	Elem. & Secondary Schools	56	26,887	22,279	6,526	24
891	Eng'g. & Architect. Services	591	6,957	11,074	9,243	133

net job loss would be far less than 100%. Sectors with the greatest absolute loss of jobs included eating and drinking establishments (-13,839), motor vehicles and equipment (-11,054), and metalworking machinery (-8,838).

Combining this information about new jobs added and old jobs lost into the measure of overall job flux provides the best picture of those businesses and industries in transition (see Table E.5). Here we see that greatest proportional flux occured in communication services (1,579%), social services (1,058%), and publishing (747%) while the greatest absolute job flux involved the following sectors. In order, they are:

1) Eating and Drinking Places (33,548);
2) Motor Vehicles and Equipment (22,519);
3) Metalworking Machinery (15,153);
4) Miscellaneous Business Services (14,755);
5) Hospitals (10,127);
6) Engineering and Architecture Services (9,243); and
7) Nursing/Personal Care Facilities (8,453).

The mixture of industries in transition in Oakland County spans the spectrum from manufacturing to service and from professional to unskilled. What is clear, however, is that aside from the large and predictable flux in the restaurant and bar industry, there is substantial activity occuring in businesses requiring significant professional training and sophistication. Motor Vehicles and Metalworking are undergoing a significant transition and are among the highest in both jobs created and jobs lost. Metalworking is also experiencing a considerable decline (-20) in net employment, while the net employment change from 1979:4 to 1984: in Motor Vehicles is nearly zero.

The results of the above MESC analysis should prove useful in targeting businesses and industries for special assistance at the state as well as County level. Future analyses of the updated MESC longitudinal records will enable these projections to be made for 1985 and 1986.

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Table F.1. Location Factor Indexes by Industry

INDUSTRY	Socio-technical Infra-Structure	Business Climate	Overall Quality	State Taxes	Commercial Space	Housing	Transportation	Input Availability	Proximity to Markets	Proximity to Residence
Retail	2.79	2.81	3.80	2.29	3.56	2.94	2.98	2.82	4.49	3.57
Wholesale	2.86	2.79	3.70	2.33	3.51	2.95	3.21	3.09	4.30	3.84
Manufacturing	2.95	2.79	3.61	2.08	3.38	3.16	3.14	3.51	4.16	3.85
Finance & Insurance	2.96	2.89	4.00	2.62	3.49	3.31	3.17	3.15	4.30	3.78
Business Services	2.94	2.94	3.71	2.15	3.58	3.27	3.11	3.30	4.33	3.85
Other Services	2.98	2.98	3.77	2.67	3.64	3.19	3.18	3.12	4.48	3.73
M.D.	3.01	2.96	3.71	2.29	3.56	3.30	3.08	3.28	4.44	3.88
N	544	550	553	550	557	555	552	554	578	561
F	1.32	1.38	2.15	5.30	1.30	2.74	.70	7.70	1.69	.86
P	.25	.22	.05	<.01	.26	.01	.65	<.01	.12	.53

Table F.2. Operating Problem Indexes by Industry

INDUSTRY	People	Competitive Strategy	Strategic Planning	Operations Management	Money	Production & Technology	Insurance & Regulatory Costs	International Competition	State of Economy
Retail	2.48	1.94	2.09	1.71	1.90	1.36	3.00	1.25	2.47
Wholesale	2.65	2.60	2.35	2.03	2.12	1.47	3.05	1.66	2.89
Manufacturing	2.48	2.47	2.29	1.92	2.20	2.22	3.30	2.44	2.99
Finance & Insurance	2.44	2.38	2.25	2.00	1.61	1.60	2.84	1.11	2.61
Business Services	2.49	2.30	2.32	1.89	2.21	1.83	2.77	1.39	2.57
Other Services	2.44	2.18	2.38	2.02	2.31	1.68	3.05	1.25	2.54
M.D.	2.51	2.30	2.38	2.04	2.32	1.93	3.23	1.49	2.93
N	550	454	394	463	533	331	519	277	577
F	.34	2.16	.56	1.31	2.95	5.60	2.90	12.31	3.51
p	.91	.05	.76	.25	.01	<.01	.01	<.01	<.01

Table F.3. Business Service Indexes by Industry

INDUSTRY	Management Consulting	Employment	Training and Outplacement	Printing and Mailing	Legal	Technical	Marketing	Computing
Retail	1.70	1.56	1.07	2.54	2.27	1.39	2.33	1.80
Wholesale	1.93	1.84	1.34	2.75	2.57	1.50	2.23	2.36
Manufacturing	1.88	2.01	1.35	2.44	2.67	2.13	2.09	2.06
Finance & Insurance	1.75	2.29	1.29	3.20	2.89	1.34	2.21	2.43
Business Services	1.87	2.01	1.26	3.02	2.58	1.56	1.88	2.16
Other Services	2.11	2.15	1.52	3.00	2.65	1.70	2.24	2.30
M.D.	1.98	2.04	1.35	2.80	2.77	1.77	1.97	2.10
N	599	601	595	593	607	603	601	604
F	3.32	3.99	2.71	8.54	2.37	8.18	1.77	2.08
p	<.01	<.01	.01	<.01	.03	<.01	.10	.05

Table F.4. Economic Outlook Indexes by Industry

INDUSTRY	Invest/ Expand Oakland Co.	Invest/ Expand Outside Oakland Co.	Market Growth	Firm Prospects	Oakland Co. Prospects	Economic Outlook Index
Retail	2.84	1.59	2.34	3.63	3.28	59.72
Wholesale	2.92	1.57	2.44	3.32	3.00	58.45
Manufacturing	2.69	1.33	2.33	3.19	2.87	55.44
Finance & Insurance	2.84	1.39	2.55	3.68	3.30	60.59
Business Services	2.85	1.34	2.50	3.49	3.29	60.00
Other Services	2.92	1.20	2.14	3.64	3.40	60.09
M.D.	2.78	1.32	2.37	3.42	3.18	58.55
N	598	598	596	605	593	567
F	1.42	3.05	2.24	6.23	5.93	3.72
p	.20	.01	.04	<.01	<.01	<.01

Table F.5. Location Factor Indexes by Level of Technology

LEVEL OF TECHNOLOGY	Socio-technical Infra-Structure	Business Climate	Overall Quality	State Taxes	Commercial Space	Housing	Transportation	Input Availability	Proximity to Markets	Proximity to Residence
Low	2.89	2.88	3.71	2.18	3.68	3.06	3.08	3.13	4.39	3.82
Medium-Low	2.95	2.92	3.62	2.33	3.45	3.17	3.14	3.44	4.19	3.84
Medium-High	2.92	2.79	3.57	2.04	3.40	3.19	3.19	3.38	4.36	3.88
High	3.08	2.80	3.75	2.30	3.27	3.23	3.05	3.40	4.37	3.93
M.D.	2.94	2.89	3.83	2.38	3.55	3.24	3.12	3.16	4.37	3.76
N	544	550	553	550	557	555	552	554	578	561
F	.97	.71	2.67	2.67	3.14	1.02	.39	4.29	.92	.49
p	.42	.59	.03	.03	.01	.40	.82	<.01	.45	.74

Table F.6. Operating Problem Indexes by Level of Technology

LEVEL OF TECHNOLOGY	People	Competitive Strategy	Strategic Planning	Operations Management	Money	Production & Technology	Insurance & Regulatory Costs	International Competition	State of Economy
Low	2.57	2.36	2.28	1.94	2.25	1.79	2.99	1.61	2.70
Medium-Low	2.41	2.50	2.36	1.89	2.06	2.12	3.15	1.99	2.78
Medium-High	2.51	2.42	2.31	1.91	2.22	2.10	3.08	2.12	2.91
High	2.29	2.08	2.11	1.75	2.18	1.94	2.94	2.00	2.68
M.D.	2.53	2.30	2.33	2.04	2.14	1.70	3.14	1.52	2.78
N	550	454	394	463	533	331	519	277	577
F	1.21	1.57	.62	1.58	.43	3.05	.59	3.34	.43
p	.31	.18	.65	.18	.79	.02	.67	.01	.79

Table F.7. Business Service Indexes by Level of Technology

LEVEL OF TECHNOLOGY	Management Consulting	Employment	Training and Outplacement	Printing and Mailing	Legal	Technical	Marketing	Computing
Low	1.82	1.80	1.19	2.59	2.56	1.46	1.87	2.04
Medium-Low	1.98	2.04	1.33	2.64	2.66	1.89	2.15	2.15
Medium-High	1.84	2.01	1.53	2.76	2.65	2.05	2.11	2.13
High	2.08	2.17	1.43	2.90	2.81	2.13	2.30	2.10
M.D.	1.89	2.04	1.30	2.88	2.65	1.61	2.13	2.19
N	599	601	595	593	607	603	601	604
F	1.97	1.77	3.29	2.69	.44	7.37	1.62	.30
P	.10	.13	.01	.03	.78	<.01	.17	.88

Table F.8. Economic Outlook Indexes by Level of Technology

LEVEL OF TECHNOLOGY	Invest/ Expand Oakland Co.	Invest/ Expand Outside Oakland Co.	Market Growth	Firm Prospects	Oakland Co. Prospects	Economic Outlook Index
Low	2.71	1.33	2.21	3.43	3.22	57.49
Medium-Low	2.81	1.46	2.38	3.38	3.00	57.80
Medium-High	2.93	1.29	2.60	3.26	3.15	59.87
High	2.94	1.45	2.92	3.51	3.21	61.79
M.D.	2.77	1.33	2.26	3.49	3.18	58.08
N	598	598	596	605	593	567
F	1.54	1.52	10.35	1.76	1.42	1.99
p	.19	.19	<.01	.13	.22	.09

Table F.9. Location Factor Indexes by Stage of Development

STAGE OF DEVELOPMENT	Socio-technical Infra-Structure	Business Climate	Overall Quality	State Taxes	Commercial Space	Housing	Transportation	Input Availability	Proximity to Markets	Proximity to Residence
Start-Up	2.88	2.77	3.59	2.18	3.53	3.06	3.06	3.18	3.82	4.00
Accelerated Growth	3.01	2.90	3.79	2.17	3.60	3.30	3.13	3.42	4.22	3.95
Steady Growth	2.92	2.90	3.71	2.28	3.53	3.16	3.14	3.18	4.42	3.81
Stable	2.96	2.84	3.71	2.36	3.43	3.20	3.13	3.30	4.31	3.74
Declining	3.00	3.00	3.73	2.17	3.50	3.13	3.20	3.45	4.39	3.81
M.D.	2.80	2.80	3.84	2.36	3.60	3.15	2.80	3.12	4.23	3.72
N	544	550	553	550	557	555	552	554	578	561
F	.96	.58	.40	.72	.69	.59	1.31	1.97	1.73	.68
p	.44	.72	.85	.61	.64	.71	.26	.08	.13	.64

Table F.10. Operating Problem Indexes by Stage of Development

STAGE OF DEVELOPMENT	People	Competitive Strategy	Strategic Planning	Operations Management	Money	Production & Technology	Insurance & Regulatory Costs	International Competition	State of Economy
Start-Up	2.53	2.36	2.27	1.63	3.31	2.00	2.93	2.00	2.60
Accelerated Growth	2.50	2.00	2.26	2.00	2.14	1.76	3.03	1.49	2.40
Steady Growth	2.44	2.27	2.19	1.95	1.94	1.83	3.05	1.79	2.73
Stable	2.51	2.48	2.39	1.90	2.12	1.97	3.08	1.77	2.86
Declining	2.89	3.23	2.77	2.00	3.03	2.53	3.64	2.93	3.57
M.D.	2.40	2.56	2.60	2.00	2.59	2.09	3.35	2.10	2.91
N	550	454	394	463	533	331	519	277	577
F	1.56	7.63	2.40	1.43	10.92	2.16	1.91	4.09	5.57
p	.17	<.01	.04	.21	<.01	.06	.09	<.01	<.01

Table F.11. Business Service Indexes by Stage of Development

STAGE OF DEVELOPMENT	Management Consulting	Employment	Training and Outplacement	Printing and Mailing	Legal	Technical	Marketing	Computing
Start-Up	1.82	2.06	1.29	2.88	2.59	2.24	2.41	2.06
Accelerated Growth	1.96	2.24	1.41	3.04	2.77	1.90	2.42	2.54
Steady Growth	1.91	2.01	1.30	2.82	2.69	1.64	2.11	2.18
Stable	1.88	1.89	1.30	2.57	2.58	1.67	1.96	1.94
Declining	1.89	1.97	1.51	2.63	2.54	2.17	1.94	1.89
M.D.	1.87	2.05	1.32	2.82	2.62	1.74	1.97	2.21
N	599	601	595	593	607	603	601	604
F	.29	1.72	1.05	3.46	.58	3.30	2.64	3.52
p	.92	.13	.39	<.01	.72	.01	.02	<.01

Table F.12. Economic Outlook Indexes by Stage of Development

STAGE OF DEVELOPMENT	Invest/ Expand Oakland Co.	Invest/ Expand Outside Oakland Co.	Market Growth	Firm Prospects	Oakland Co. Prospects	Economic Outlook Index
Start-Up	2.60	1.27	3.00	3.22	3.06	57.87
Accelerated Growth	3.23	1.56	2.83	3.79	3.39	65.97
Steady Growth	2.88	1.40	2.50	3.60	3.21	60.46
Stable	2.61	1.26	2.05	3.20	3.09	54.58
Declining	2.38	1.30	1.74	2.50	2.47	46.12
M.D.	2.80	1.19	2.23	3.48	3.15	57.33
N	598	598	596	605	593	567
F	13.12	3.28	26.61	26.47	7.39	35.53
p	<.01	.01	<.01	<.01	<.01	<.01

Table F.13. Location Factor Indexes by Firm Size

FIRM SIZE	Socio-technical Infra-Structure	Business Climate	Overall Quality	State Taxes	Commercial Space	Housing	Transportation	Input Availability	Proximity to Markets	Proximity to Residence
1-5	2.87	2.88	3.74	2.35	3.49	3.18	3.10	3.16	4.26	4.00
6-25	2.89	2.82	3.66	2.29	3.51	3.14	3.04	3.26	4.19	3.73
26-100	3.02	2.87	3.78	2.20	3.53	3.20	3.22	3.37	4.56	3.76
101-500	3.02	2.93	3.71	2.22	3.56	3.19	3.12	3.32	4.53	3.59
>500	3.11	3.05	3.75	2.50	3.52	3.43	3.19	3.29	4.33	3.67
M.D.	3.03	2.84	3.74	2.17	3.42	3.24	3.21	3.38	4.17	3.73
N	544	550	553	550	557	555	552	554	578	561
F	2.55	.66	.35	.88	.24	.61	.93	1.38	2.92	3.14
p	.03	.65	.88	.49	.94	.69	.47	.23	.01	.01

Table F.14. Operating Problem Indexes by Firm Size

FIRM SIZE	People	Competitive Strategy	Strategic Planning	Operations Management	Money	Production & Technology	Insurance & Regulatory Costs	International Competition	State of Economy
1-5	2.33	2.23	2.32	1.83	2.25	1.85	2.86	1.53	2.73
6-25	2.57	2.48	2.27	2.02	2.18	2.02	3.19	1.90	2.73
26-100	2.60	2.32	2.24	1.94	2.05	1.73	2.99	1.83	2.67
101-500	2.56	2.43	2.33	1.99	2.03	1.97	3.38	1.94	2.99
>500	2.74	2.61	2.33	2.26	2.13	2.60	3.46	1.80	2.75
M.D.	2.51	2.35	2.39	2.07	2.14	1.96	3.34	2.47	2.98
N	550	454	394	463	533	331	519	277	577
F	2.45	1.21	.18	2.01	.72	1.69	4.64	2.46	1.28
P	.03	.30	.97	.07	.61	.14	<.01	.03	.27

Table F.15. Business Service Indexes by Firm Size

FIRM SIZE	Management Consulting	Employment	Training and Outplacement	Printing and Mailing	Legal	Technical	Marketing	Computing
1-5	1.79	1.76	1.23	2.76	2.35	1.53	1.95	1.94
6-25	1.96	2.07	1.39	2.77	2.64	1.78	1.98	2.18
26-100	1.96	2.16	1.32	2.86	2.85	1.85	2.27	2.29
101-500	1.97	2.26	1.38	2.72	3.01	1.79	2.20	2.30
>500	1.96	2.12	1.68	2.80	2.96	1.96	2.46	2.50
M.D.	2.02	2.11	1.34	2.73	2.77	2.11	2.32	2.16
N	599	601	595	593	607	603	601	604
F	2.45	5.97	2.92	.25	8.61	3.87	2.81	2.59
p	.03	<.01	.01	.94	<.01	<.01	.02	.02

Table F.16. Economic Outlook Indexes by Firm Size

FIRM SIZE	Invest/ Expand Oakland Co.	Invest/ Expand Outside Oakland Co.	Market Growth	Firm Prospects	Oakland Co. Prospects	Economic Outlook Index
1-5	2.68	1.16	2.34	3.47	3.21	57.71
6-25	2.81	1.33	2.33	3.42	3.08	57.79
26-100	2.91	1.47	2.47	3.41	3.07	59.62
101-500	2.88	1.48	2.32	3.28	3.12	58.09
>500	3.08	1.90	2.44	3.56	3.33	61.92
M.D.	2.87	1.60	2.47	3.56	3.12	60.29
N	598	598	596	605	593	567
F	2.91	12.33	.80	1.39	1.00	1.51
p	.01	<.01	.55	.23	.42	.18

Table F.17. Location Factor Indexes by Homegrown

HOMEGROWN	Socio-technical Infra-Structure	Business Climate	Overall Quality	State Taxes	Commercial Space	Housing	Transportation	Input Availability	Proximity to Markets	Proximity to Residence
Same Area	2.97	2.88	3.66	2.19	3.47	3.29	3.18	3.32	4.26	4.03
Within S.E. Michigan	2.81	2.81	3.71	2.15	3.50	3.10	2.86	3.29	4.32	3.55
Outside of S.E. Michigan	2.91	2.76	3.57	2.48	3.48	3.14	3.14	3.19	4.67	3.33
M.D.	2.95	2.89	3.76	2.33	3.53	3.16	3.13	3.24	4.34	3.78
N	544	550	553	550	557	555	552	554	578	561
F	1.13	.44	1.07	1.62	.21	1.47	2.60	.53	1.18	5.99
p	.34	.73	.36	.18	.89	.22	.05	.67	.32	<.01

Table F.18. Operating Problem Indexes by Homegrown

HOMEGROWN	People	Competitive Strategy	Strategic Planning	Operations Management	Money	Production & Technology	Insurance & Regulatory Costs	International Competition	State of Economy
Same Area	2.46	2.35	2.33	1.93	2.48	1.76	3.07	1.61	2.71
Within S.E. Michigan	2.57	2.34	2.16	2.03	2.17	2.13	3.05	1.50	2.67
Outside of S.E. Michigan'	2.26	2.12	2.25	1.90	2.06	2.00	2.75	2.50	3.10
M.D.	2.51	2.37	2.32	1.95	2.03	1.96	3.13	1.89	2.80
N	550	454	394	463	533	331	519	277	577
F	.72	.36	.40	.19	5.61	1.29	.91	2.77	.98
p	.54	.79	.76	.90	<.01	.28	.44	.04	.40

Table F.19. Business Service Indexes by Homegrown

HOMEGROWN	Management Consulting	Employment	Training and Outplacement	Printing and Mailing	Legal	Technical	Marketing	Computing
Same Area	1.97	2.07	1.32	2.85	2.69	1.84	2.15	2.34
Within S.E. Michigan	1.91	2.07	1.41	2.81	2.77	1.57	1.98	2.14
Outside of S.E. Michigan	1.62	2.29	1.19	2.95	1.81	1.48	2.52	1.43
M.D.	1.89	1.96	1.33	2.72	2.67	1.73	2.07	2.10
N	599	601	595	593	607	603	601	604
F	2.05	1.34	.54	1.15	5.46	1.39	1.49	4.44
p	.10	.26	.66	.33	<.01	.24	.21	<.01

Table F.20. Economic Outlook Indexes by Homegrown

HOMEGROWN	Invest/ Expand Oakland Co.	Invest/ Expand Outside Oakland Co.	Market Growth	Firm Prospects	Oakland Co. Prospects	Economic Outlook Index
Same Area	2.82	1.34	2.50	3.44	3.14	59.20
Within S.E. Michigan	2.85	1.51	2.31	3.28	3.19	58.32
Outside of S.E. Michigan	2.77	1.71	2.58	3.33	2.98	58.21
M.D.	2.79	1.33	2.31	3.45	3.15	58.13
N	598	598	596	605	593	567
F	.12	3.59	3.10	.89	.37	.43
p	.95	.01	.03	.45	.78	.74

Table F.21. Location Factor Indexes by Foreign Export

FOREIGN EXPORT	Socio-technical Infra-Structure	Business Climate	Overall Quality	State Taxes	Commercial Space	Housing	Transportation	Input Availability	Proximity to Markets	Proximity to Residence
Yes	2.96	2.75	3.63	2.14	3.40	3.16	3.14	3.39	4.21	3.96
No	2.94	2.91	3.74	2.32	3.54	3.20	3.11	3.23	4.37	3.77
M.D.	3.00	2.88	4.25	2.50	3.50	2.88	3.25	3.13	4.00	3.88
N	544	550	553	550	557	555	552	554	578	561
F	.11	2.70	3.33	2.23	1.70	.92	.21	2.25	1.92	1.89
p	.90	.07	.04	.11	.18	.40	.81	.10	.15	.15

Table F.22. Operating Problem Indexes by Foreign Export

FOREIGN EXPORT	People	Competitive Strategy	Strategic Planning	Operations Management	Money	Production & Technology	Insurance & Regulatory Costs	International Competition	State of Economy
Yes	2.43	2.32	2.19	1.90	2.18	2.14	3.23	2.41	2.90
No	2.52	2.36	2.33	1.97	2.16	1.83	3.06	1.55	2.76
M.D.	2.25	2.25	2.60	1.83	1.57	1.33	3.10	1.00	2.20
N	550	454	394	463	533	331	519	277	577
F	.87	.12	1.25	.46	1.02	4.23	1.13	20.02	2.15
p	.42	.88	.29	.64	.36	.02	.32	<.01	.12

Table F.23. Business Service Indexes by Foreign Export

FOREIGN EXPORT	Management Consulting	Employment	Training and Outplacement	Printing and Mailing	Legal	Technical	Marketing	Computing
Yes	1.87	1.99	1.29	2.61	2.62	2.04	2.28	2.20
No	1.91	2.01	1.34	2.81	2.66	1.65	2.06	2.14
M.D.	1.92	2.00	1.33	2.75	2.50	2.00	1.75	1.75
N	599	601	595	593	607	603	601	604
F	.24	.02	.28	2.39	.21	7.98	2.69	.83
p	.79	.98	.76	.09	.81	<.01*	.07	.44

Table F.24. Economic Outlook Indexes by Foreign Export

FOREIGN EXPORT	Invest/ Expand Oakland Co.	Invest/ Expand Outside Oakland Co.	Market Growth	Firm Prospects	Oakland Co. Prospects	Economic Outlook Index
Yes	2.83	1.49	2.62	3.33	3.01	59.00
No	2.80	1.32	2.31	3.45	3.18	58.29
M.D.	2.88	1.55	2.06	3.73	3.17	58.44
N	598	598	596	605	593	567
F	.15	3.90	9.22	2.21	2.06	.24
p	.86	.02	<.01	.11	.13	.79

Table F.25. Location Factor Indexes by New Firms

NEW FIRMS	Socio-technical Infra-Structure	Business Climate	Overall Quality	State Taxes	Commercial Space	Housing	Transportation	Input Availability	Proximity to Markets	Proximity to Residence
Old	2.94	2.89	3.78	2.35	3.53	3.17	3.14	3.23	4.33	3.79
New	2.95	2.80	3.59	2.23	3.43	3.16	3.04	3.37	4.27	3.97
M.D.	2.94	2.90	3.69	2.16	3.52	3.26	3.14	3.27	4.40	3.75
N	544	550	553	550	557	555	552	554	578	561
F	.01	.77	2.92	2.38	.72	.77	.84	1.39	.58	1.78
p	.99	.47	.05	.09	.49	.47	.44	.25	.57	.17

Table F.26. Operating Problem Indexes by New Firms

NEW FIRMS	People	Competitive Strategy	Strategic Planning	Operations Management	Money	Production & Technology	Insurance & Regulatory Costs	International Competition	State of Economy
Old	2.50	2.37	2.30	1.96	2.02	1.93	3.14	1.89	2.79
New	2.40	2.24	2.31	1.84	2.64	1.89	2.80	1.71	2.55
M.D.	2.54	2.38	2.32	2.01	2.18	1.89	3.20	1.67	2.90
N	550	454	394	463	533	331	519	277	577
F	.82	.58	.02	1.32	11.33	.07	4.49	1.08	2.99
P	.45	.57	.98	.27	<.01	.93	.01	.34	.05

Table F.27. Business Service Indexes by New Firms

NEW FIRMS	Management Consulting	Employment	Training and Outplacement	Printing and Mailing	Legal	Technical	Marketing	Computing
Old	1.90	1.97	1.33	2.69	2.66	1.72	2.06	2.10
New	1.87	2.07	1.31	3.00	2.50	1.79	2.07	2.16
M.D.	1.93	2.07	1.32	2.80	2.73	1.74	2.21	2.25
N	599	601	595	593	607	603	601	604
F	.34	1.07	.08	4.61	1.72	.15	1.02	.88
p	.72	.35	.93	.01	.18	.86	.36	.42

Table F.28. Economic Outlook Indexes by New Firms

NEW FIRMS	Invest/ Expand Oakland Co.	Invest/ Expand Outside Oakland Co.	Market Growth	Firm Prospects	Oakland Co. Prospects	Economic Outlook Index
Old	2.79	1.33	2.30	3.45	3.16	58.26
New	2.76	1.35	2.54	3.33	3.15	58.13
M.D.	2.87	1.44	2.42	3.44	3.11	59.06
N	598	598	596	605	593	567
F	.81	1.66	4.14	1.18	.27	.38
p	.45	.19	.02	.31	.77	.69

Table F.29. Location Factor Indexes by High Growth

HIGH GROWTH	Socio-technical Infra-Structure	Business Climate	Overall Quality	State Taxes	Commercial Space	Housing	Transportation	Input Availability	Proximity to Markets	Proximity to Residence
No	2.94	2.89	3.73	2.31	3.53	3.18	3.11	3.22	4.33	3.80
Yes	2.94	2.85	3.72	2.24	3.47	3.20	3.16	3.36	4.34	3.83
N	544	550	553	550	557	555	552	554	578	561
F	.01	.49	.01	.68	.78	.04	.66	4.53	.01	.14
p	.98	.49	.90	.42	.38	.84	.42	.03	.94	.71

Table F.30. Operating Problem Indexes by High Growth

HIGH GROWTH	People	Competitive Strategy	Strategic Planning	Operations Management	Money	Production & Technology	Insurance & Regulatory Costs	International Competition	State of Economy
No	2.51	2.37	2.32	1.95	2.16	1.85	3.12	1.71	2.79
Yes	2.47	2.31	2.26	1.95	2.14	2.06	3.04	1.99	2.76
N	550	454	394	463	533	331	519	277	577
F	.29	.40	.39	.01	.03	3.36	.51	3.78	.09
p	.60	.53	.54	.96	.86	.06	.48	.05	.76

Table F.31. Business Service Indexes by High Growth

HIGH GROWTH	Management Consulting	Employment	Training and Outplacement	Printing and Mailing	Legal	Technical	Marketing	Computing
No	1.92	1.93	1.33	2.8	2.64	1.68	2.11	2.13
Yes	1.85	2.19	1.31	2.69	2.69	1.88	2.07	2.17
N	599	601	595	593	607	603	601	604
F	1.60	10.29	.15	1.72	.43	5.39	.20	.18
p	.20	<.01	.70	.19	.52	.02	.66	.68

Table F.32. Economic Outlook Indexes by High Growth

HIGH GROWTH	Invest/ Expand Oakland Co.	Invest/ Expand Outside Oakland Co.	Market Growth	Firm Prospects	Oakland Co. Prospects	Economic Outlook Index
No	2.80	1.33	2.32	3.44	3.17	58.30
Yes	2.82	1.42	2.49	3.40	3.10	58.71
N	598	598	596	605	593	567
F	.16	2.82	6.02	.28	.86	.21
p	.69	.09	.01	.60	.36	.65

Table F.33. Location Factor Indexes by I-696 Corridor

I-696 CORRIDOR	Socio-technical Infra-Structure	Business Climate	Overall Quality	State Taxes	Commercial Space	Housing	Transportation	Input Availability	Proximity to Markets	Proximity to Residence
No	2.94	2.85	3.77	2.33	3.46	3.18	3.08	3.25	4.30	3.82
Yes	2.95	2.93	3.64	2.21	3.61	3.20	3.20	3.27	4.40	3.79
N	544	550	553	550	557	555	552	554	578	561
F	.08	2.51	4.16	2.64	5.08	.11	3.85	.09	1.53	.13
p	.77	.11	.04	.10	.02	.74	.05	.76	.21	.72

Table F.34. Operating Problem Indexes by I-696 Corridor

I-696 CORRIDOR	People	Competitive Strategy	Strategic Planning	Operations Management	Money	Production & Technology	Insurance & Regulatory Costs	International Competition	State of Economy
No	2.49	2.29	2.27	1.91	2.06	2.02	3.06	1.82	2.72
Yes	2.50	2.46	2.37	2.01	2.31	1.73	3.17	1.79	2.87
N	550	454	394	463	533	331	519	277	577
F	.01	3.17	1.38	1.98	6.52	6.96	1.34	.04	2.59
p	.92	.07	.24	.16	.01	.01	.25	.85	.10

Table F.35. Business Service Indexes by I-696 Corridor

I-696 CORRIDOR	Management Consulting	Employment	Training and Outplacement	Printing and Mailing	Legal	Technical	Marketing	Computing
No	1.86	2.04	1.35	2.77	2.59	1.72	2.13	2.11
Yes	1.98	1.95	1.29	2.76	2.75	1.76	2.05	2.20
N	599	601	595	593	607	603	601	604
F	5.19	1.42	.84	.04	3.44	.15	.90	.74
p	.02	.23	.36	.84	.06	.70	.35	.39

Table F.36. Economic Outlook Indexes by I-696 Corridor

I-696 CORRIDOR	Invest/ Expand Oakland Co.	Invest/ Expand Outside Oakland Co.	Market Growth	Firm Prospects	Oakland Co. Prospects	Economic Outlook Index
No	2.81	1.38	2.41	3.46	3.15	58.84
Yes	2.80	1.32	2.30	3.37	3.15	57.71
N	598	598	596	605	593	567
F	.06	1.19	3.30	2.21	<.01	1.77
p	.81	.27	.07	.13	.97	.18

Table F.37. Location Factor Indexes by Bracketed Subjective Performance

Index	High		Low		M.D.		p
	N	Mean	N	Mean	N	Mean	
Sociotechnical Infrastructure	207	2.95	311	2.96	26	2.73	.10
Business Climate	208	2.93	315	2.86	27	2.70	.16
Overall Quality	209	3.82	316	3.69	28	3.43	.01
State Taxes	209	2.34	315	2.26	26	2.08	.26
Commercial Space	211	3.58	319	3.49	27	3.22	.05
Housing	211	3.20	317	3.21	27	2.89	.09
Transportation	209	3.17	316	3.11	27	2.85	.06
Input Availability	208	3.33	319	3.24	27	3.00	.07
Proximity to Market	217	4.40	327	4.30	34	4.27	.45
Proximity to Residence	214	3.84	318	3.82	29	3.52	.21

Table F.38. Operating Problem Indexes by Bracketed Subjective Performance

Index	High		Low		M.D.		p
	N	Mean	N	Mean	N	Mean	
People	201	2.23	320	2.67	29	2.41	<.01
Competitive Strategy	158	2.06	276	2.54	20	2.00	<.01
Strategic Planning	142	2.02	235	2.48	17	2.24	<.01
Operations Management	173	1.81	272	2.05	18	1.78	<.01
Money	190	1.84	314	2.31	29	2.55	<.01
Production & Technology	120	1.85	194	1.97	17	1.77	.47
Insurance & Regulatory Costs	189	3.13	301	3.09	29	2.93	.65
Internat'l Competition	98	1.78	168	1.83	11	1.82	.94
State of Economy	210	2.62	331	2.86	36	2.92	.04

Table F.39. **Business Service Indexes by Bracketed Subjective Performance**

Index	High		Low		M.D.		p
	N	Mean	N	Mean	N	Mean	
Management Consulting	220	1.89	336	1.91	43	1.91	.93
Employment	221	2.04	337	1.99	43	2.00	.77
Training and Outplacement	220	1.38	333	1.31	42	1.19	.15
Printing and Mailing	219	2.85	332	2.74	42	2.55	.10
Legal	221	2.65	343	2.67	43	2.47	.44
Technical	219	1.74	339	1.70	45	1.96	.28
Marketing	220	2.13	338	2.13	43	1.70	.04
Computing	222	2.20	339	2.12	43	2.00	.54

Table F.40. **Economic Outlook Indexes by Bracketed Subjective Performance**

Index	High		Low		M.D.		p
	N	Mean	N	Mean	N	Mean	
Invest/Expand in Oakland Co.	217	2.98	342	2.72	39	2.63	<.01
Invest/Expand Outside Oakland Co.	220	1.35	336	1.37	42	1.32	.85
Market Growth	215	2.45	344	2.34	37	2.14	.03
Firm Prospects	221	3.70	344	3.25	40	3.48	<.01
Oakland Co. Prospects	214	3.28	338	3.08	41	3.01	.01
Economic Outlook Index	204	61.88	330	56.55	33	55.82	<.01

Table F.41. Location Factor Indexes by Bracketed ROI (3-Year Average)

Index	High		Low		M.D.		p
	N	Mean	N	Mean	N	Mean	
Sociotechnical Infrastructure	72	3.04	69	2.83	403	2.94	.04
Business Climate	72	2.97	68	2.75	410	2.88	.11
Overall Quality	72	3.60	68	3.66	413	3.76	.16
State Taxes	72	2.21	68	2.10	410	2.33	.09
Commercial Space	72	3.39	71	3.54	414	3.53	.34
Housing	72	3.21	69	3.13	414	3.19	.78
Transportation	72	3.15	69	2.97	411	3.14	.14
Input Availability	71	3.31	70	3.29	413	3.25	.77
Proximity to Market	76	4.33	71	4.30	431	4.34	.94
Proximity to Residence	73	3.89	70	3.80	418	3.80	.74

Table F.42. Operating Problem Indexes by Bracketed ROI (3-Year Average)

Index	High		Low		M.D.		p
	N	Mean	N	Mean	N	Mean	
People	74	2.73	68	2.72	408	2.41	<.01
Competitive Strategy	63	2.41	60	2.53	331	2.31	.21
Strategic Planning	57	2.42	52	2.37	285	2.27	.41
Operations Management	65	2.08	57	2.14	341	1.89	.02
Money	75	2.12	70	2.27	388	2.14	.64
Production & Technology	46	1.87	46	1.94	239	1.92	.94
Insurance & Regulatory Costs	68	3.28	68	3.44	383	3.00	<.01
Internat'l Competition	34	1.94	41	2.02	202	1.74	.27
State of Economy	72	2.85	72	3.07	433	2.72	.03

Table F.43. Business Service Indexes by Bracketed ROI (3-Year Average)

Index	High		Low		M.D.		p
	N	Mean	N	Mean	N	Mean	
Management Consulting	75	1.95	70	2.00	454	1.88	.26
Employment	77	2.04	71	2.07	453	1.99	.74
Training and Outplacement	75	1.33	70	1.44	450	1.31	.26
Printing and Mailing	76	2.76	70	2.77	447	2.77	1.00
Legal	77	2.75	72	2.85	458	2.60	.09
Technical	76	1.87	71	1.86	456	1.70	.20
Marketing	76	2.17	70	2.21	455	2.07	.47
Computing	76	2.28	71	2.31	457	2.09	.19

Table F.44. Economic Outlook Indexes by Bracketed ROI (3-Year Average)

Index	High		Low		M.D.		p
	N	Mean	N	Mean	N	Mean	
Invest/Expand in Oakland Co.	77	3.01	74	2.97	447	2.74	<.01
Invest/Expand Outside Oakland Co.	78	1.55	70	1.39	450	1.32	.01
Market Growth	78	2.35	74	2.47	444	2.36	.43
Firm Prospects	79	3.47	74	3.28	452	3.45	.16
Oakland Co. Prospects	78	3.03	72	3.01	443	3.19	.07
Economic Outlook Index	76	59.58	72	59.06	419	58.11	.41

Table F.45. Location Factor Indexes by Bracketed Sales Growth (5-Year Average)

Index	High		Low		M.D.		p
	N	Mean	N	Mean	N	Mean	
Sociotechnical Infrastructure	141	2.94	134	2.97	269	2.93	.75
Business Climate	142	2.81	135	2.96	273	2.87	.12
Overall Quality	142	3.68	136	3.70	275	3.76	.45
State Taxes	143	2.05	136	2.34	271	2.38	<.01
Commercial Space	143	3.48	137	3.47	277	3.55	.54
Housing	142	3.18	136	3.21	277	3.18	.89
Transportation	142	3.12	136	3.15	274	3.11	.79
Input Availability	140	3.40	137	3.24	277	3.20	.03
Proximity to Market	145	4.32	141	4.40	292	4.31	.65
Proximity to Residence	142	3.98	137	3.70	282	3.78	.03

Table F.46. Operating Problem Indexes by Bracketed Sales Growth (5-Year Average)

Index	High		Low		M.D.		p
	N	Mean	N	Mean	N	Mean	
People	141	2.65	136	2.63	273	2.35	<.01
Competitive Strategy	126	2.42	107	2.49	221	2.24	.06
Strategic Planning	113	2.35	98	2.42	183	2.21	.12
Operations Management	124	2.03	110	2.03	229	1.87	.05
Money	141	2.47	134	2.05	258	2.04	<.01
Production & Technology	87	2.01	91	1.91	153	1.86	.53
Insurance & Regulatory Costs	135	3.07	125	3.24	259	3.04	.21
Internat'l Competition	73	1.86	73	1.78	131	1.79	.89
State of Economy	144	2.60	137	3.13	296	2.70	<.01

Table F.47. Business Service Indexes by Bracketed Sales Growth (5-Year Average)

Index	High		Low		M.D.		p
	N	Mean	N	Mean	N	Mean	
Management Consulting	147	2.00	142	1.88	310	1.87	.09
Employment	148	2.07	143	1.93	310	2.01	.41
Training and Outplacement	146	1.34	141	1.39	308	1.29	.29
Printing and Mailing	147	2.96	139	2.61	307	2.75	<.01
Legal	150	2.71	145	2.72	312	2.59	.30
Technical	148	1.82	143	1.64	312	1.74	.28
Marketing	149	2.20	142	2.10	310	2.05	.36
Computing	149	2.41	144	2.04	311	2.06	.01

Table F.48. Economic Outlook Indexes by Bracketed Sales Growth (5-Year Average)

Index	High		Low		M.D.		p
	N	Mean	N	Mean	N	Mean	
Invest/Expand in Oakland Co.	148	2.92	146	2.75	304	2.78	.08
Invest/Expand Outside Oakland Co.	148	1.38	143	1.39	307	1.34	.66
Market Growth	149	2.52	147	2.29	300	2.33	.02
Firm Prospects	150	3.39	148	3.30	307	3.51	.02
Oakland Co. Prospects	147	3.17	145	3.02	301	3.20	.09
Economic Outlook Index	144	59.61	140	56.83	283	58.61	.05

Table F.49. Location Factor Indexes by Bracketed Employment Growth

Index	High		Low		M.D.		p
	N	Mean	N	Mean	N	Mean	
Sociotechnical Infrastructure	100	2.93	90	2.98	354	2.94	.76
Business Climate	100	2.86	91	2.82	359	2.89	.62
Overall Quality	100	3.65	91	3.67	362	3.76	.30
State Taxes	100	2.24	91	2.19	359	2.32	.34
Commercial Space	101	3.51	91	3.47	365	3.52	.86
Housing	100	3.23	92	3.21	363	3.17	.75
Transportation	99	3.08	91	3.15	362	3.12	.75
Input Availability	99	3.33	90	3.36	365	3.22	.16
Proximity to Market	106	4.49	93	4.34	379	4.29	.14
Proximity to Residence	102	3.85	91	3.88	368	3.78	.61

Table F.50. Operating Problem Indexes by Bracketed Employment Growth

Index	High		Low		M.D.		p
	N	Mean	N	Mean	N	Mean	
People	102	2.69	94	2.45	354	2.45	.03
Competitive Strategy	85	2.34	80	2.36	289	2.35	.99
Strategic Planning	74	2.38	68	2.31	252	2.28	.70
Operations Management	89	2.12	80	1.86	294	1.92	.03
Money	100	2.41	88	2.11	345	2.09	.04
Production & Technology	66	1.94	66	2.18	199	1.82	.03
Insurance & Regulatory Costs	94	3.21	85	3.15	340	3.05	.36
Internat'l Competition	57	1.81	59	1.98	161	1.75	.39
State of Economy	107	2.79	96	3.05	374	2.70	.02

Table F.51. Business Service Indexes by Bracketed Employment Growth

Index	High		Low		M.D.		p
	N	Mean	N	Mean	N	Mean	
Management Consulting	108	1.83	102	1.99	389	1.90	18
Employment	108	2.15	102	1.90	391	2.00	.12
Training and Outplacement	107	1.45	102	1.33	386	1.29	.08
Printing and Mailing	107	2.75	101	2.56	385	2.83	.03
Legal	108	2.58	102	2.83	397	2.62	.12
Technical	107	1.72	102	1.81	394	1.72	.70
Marketing	108	2.16	102	2.07	391	2.09	.81
Computing	108	2.18	102	2.12	394	2.14	.93

Table F.52. Economic Outlook Indexes by Bracketed Employment Growth

Index	High		Low		M.D.		p
	N	Mean	N	Mean	N	Mean	
Invest/Expand in Oakland Co.	106	2.95	103	2.67	389	2.80	.01
Invest/Expand Outside Oakland Co.	106	1.45	101	1.30	391	1.35	.22
Market Growth	106	2.60	103	2.08	387	2.38	<.01
Firm Prospects	108	3.55	103	3.24	395	3.45	.01
Oakland Co. Prospects	108	3.19	99	3.05	386	3.16	.39
Economic Outlook Index	102	61.10	98	55.29	367	58.52	<.01

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